MICHIGAN JOBS COMMISSION

MICHIGAN TRAVEL COMMISSION

GRANT AWARD

PART 1. GENERAL PROVISIONS

R 2.101
Source: 1998-2000 AACS.

R 2.102
Source: 1998-2000 AACS.

R 2.103
Source: 1998-2000 AACS.

PART 2. CONVENTION BUREAU GRANTS

R 2.111
Source: 1998-2000 AACS.

R 2.112
Source: 1998-2000 AACS.

R 2.113
Source: 1998-2000 AACS.

R 2.114
Source: 1998-2000 AACS.

R 2.115
Source: 1998-2000 AACS.

R 2.116
Source: 1998-2000 AACS.

R 2.117
Source: 1998-2000 AACS.

R 2.118
Source: 1998-2000 AACS.

R 2.119
Source: 1998-2000 AACS.

R 2.120
Source: 1998-2000 AACS.

R 2.131
Source: 1998-2000 AACS.

R 2.132
Source: 1998-2000 AACS.

R 2.133
Source: 1998-2000 AACS.

R 2.134

Source: 1998-2000 AACS.

R 2.135
Source: 1998-2000 AACS.

R 2.136
Source: 1998-2000 AACS.

R 2.137
Source: 1998-2000 AACS.

R 2.138
Source: 1998-2000 AACS.

R 2.139
Source: 1998-2000 AACS.

R 2.140
Source: 1998-2000 AACS.

DEPARTMENT OF STATE

BUREAU OF ELECTIONS

LOBBYIST REGISTRATION AND REPORTING

PART 1. GENERAL PROVISIONS

R 4.411
Source: 1981 AACS.

R 4.412
Source: 1981 AACS.

R 4.413
Source: 1981 AACS.

R 4.414
Source: 1981 AACS.

PART 2. LOBBYISTS AND LOBBYIST AGENTS

R 4.421
Source: 1981 AACS.

R 4.422
Source: 1981 AACS.

R 4.423
Source: 1981 AACS.

R 4.424
Source: 1981 AACS.

R 4.425
Source: 1981 AACS.

PART 3. RECORDS

R 4.431
Source: 1981 AACS.

R 4.432
Source: 1981 AACS.

R 4.433
Source: 1981 AACS.

PART 4. REGISTRATIONS

R 4.441
Source: 1981 AACS.

R 4.442
Source: 1981 AACS.

R 4.443
Source: 1981 AACS.

R 4.444
Source: 1981 AACS.

PART 5. STATEMENTS AND REPORTS

R 4.451
Source: 1981 AACS.

R 4.452
Source: 1981 AACS.

R 4.453
Source: 1981 AACS.

R 4.454
Source: 1981 AACS.

R 4.455
Source: 1981 AACS.

R 4.456
Source: 1981 AACS.

R 4.457
Source: 1981 AACS.

R 4.458
Source: 1981 AACS.

R 4.459
Source: 1981 AACS.

PART 6. INSPECTIONS, INVESTIGATIONS, AND SWORN COMPLAINTS

R 4.461
Source: 1981 AACS.

R 4.462

Source: 1981 AACS.

R 4.463
Source: 1981 AACS.

PART 7. GIFTS

R 4.471
Source: 1981 AACS.

R 4.472
Source: 1981 AACS.

R 4.473
Source: 1981 AACS.

BUREAU OF LEGAL SERVICES

PROCEDURE FOR CONDUCTING HEARINGS

R 11.1
Source: 1979 AC.

R 11.2
Source: 1979 AC.

R 11.3
Source: 1979 AC.

R 11.4
Source: 1979 AC.

R 11.5
Source: 1979 AC.

R 11.6
Source: 1979 AC.

R 11.7
Source: 1979 AC.

R 11.8
Source: 1979 AC.

R 11.9
Source: 1979 AC.

BUREAU OF DEPARTMENT SERVICES

ASSIGNED CLAIMS PLAN

R 11.101
Source: 1989 AACS.

R 11.102
Source: 1989 AACS.

R 11.103

Source: 1989 AACS.

R 11.104
Source: 1989 AACS.

R 11.105
Source: 1989 AACS.

R 11.106
Source: 1989 AACS.

R 11.107
Source: 1989 AACS.

R 11.108
Source: 1989 AACS.

R 11.109
Source: 1989 AACS.

R 11.110
Source: 1989 AACS.

R 11.112
Source: 1989 AACS.

R 11.113
Source: 1989 AACS.

R 11.114
Source: 1989 AACS.

R 11.115
Source: 1989 AACS.

R 11.116
Source: 1989 AACS.

DEPARTMENT OF ATTORNEY GENERAL

CHARITABLE TRUSTS

R 14.11
Source: 1979 AC.

R 14.12
Source: 1979 AC.

R 14.13
Source: 1979 AC.

R 14.14
Source: 1979 AC.

R 14.15
Source: 1979 AC.

R 14.16
Source: 1979 AC.

R 14.17
Source: 1979 AC.

CONSUMER PROTECTION DIVISION
GENERAL RULES

R 14.51
Source: 1979 AC.

R 14.52
Source: 1979 AC.

R 14.53
Source: 1979 AC.

R 14.54
Source: 1979 AC.

R 14.55
Source: 1979 AC.

R 14.56
Source: 1979 AC.

R 14.57
Source: 1979 AC.

R 14.58
Source: 1979 AC.

R 14.59
Source: 1979 AC.

R 14.60
Source: 1979 AC.

R 14.61
Source: 1979 AC.

R 14.62
Source: 1979 AC.

PRICING AND ADVERTISING OF CONSUMER ITEMS

R 14.201
Source: 1979 AC.

R 14.202
Source: 1979 AC.

R 14.203
Source: 1979 AC.

R 14.204
Source: 1979 AC.

R 14.205
Source: 1979 AC.

R 14.206
Source: 1979 AC.

R 14.207
Source: 1979 AC.

R 14.208
Source: 1979 AC.

R 14.209
Source: 1979 AC.

R 14.210
Source: 1979 AC.

R 14.211
Source: 1979 AC.

EXECUTIVE OFFICE

BOARD OF ETHICS

PRACTICE AND PROCEDURE

R 15.1
Source: 2006 AACS.

R 15.2
Source: 2006 AACS.

R 15.3
Source: 2006 AACS.

R 15.4
Source: 2006 AACS.

R 15.5
Source: 2006 AACS.

R 15.6
Source: 2006 AACS.

R 15.7
Source: 2006 AACS.

R 15.8
Source: 2006 AACS.

R 15.9
Source: 2006 AACS.

R 15.10
Source: 2006 AACS.

DEPARTMENT OF MANAGEMENT AND BUDGET

OFFICE OF PROPERTY SERVICES

FEDERAL SURPLUS PROGRAM

R 18.1
Source: 1979 AC.

R 18.2
Source: 1979 AC.

R 18.3
Source: 1979 AC.

R 18.4
Source: 1979 AC.

R 18.5
Source: 1979 AC.

R 18.11
Source: 1979 AC.

R 18.21
Source: 1979 AC.

R 18.31
Source: 1979 AC.

R 18.41
Source: 1979 AC.

R 18.51
Source: 1979 AC.

R 18.61
Source: 1979 AC.

R 18.71
Source: 1979 AC.

DEPARTMENT OF HISTORY ARTS AND LIBRARIES

DIRECTOR'S OFFICE

MICROFILM STANDARDS

R 18.101
Source: 2006 AACS.

R 18.102
Source: 2006 AACS.

R 18.103
Source: 2006 AACS.

R 18.104
Source: 2006 AACS.

R 18.105
Source: 2006 AACS.

R 18.106
Source: 2006 AACS.

R 18.107
Source: 2006 AACS.

R 18.108
Source: 2006 AACS.

R 18.109
Source: 2006 AACS.

R 18.110
Source: 2006 AACS.

R 18.111
Source: 2006 AACS.

R 18.112
Source: 2006 AACS.

R 18.113
Source: 2006 AACS.

DEPARTMENT OF MANAGEMENT AND BUDGET

PROPERTY MANAGEMENT DIVISION

CONDUCT ON STATE PROPERTY

R 18.201
Source: 1982 AACS.

R 18.202
Source: 1982 AACS.

R 18.203
Source: 1982 AACS.

R 18.204
Source: 1982 AACS.

R 18.205
Source: 1982 AACS.

R 18.206
Source: 1982 AACS.

R 18.207
Source: 1982 AACS.

R 18.208
Source: 1982 AACS.

BUILDING DIVISION

PUBLIC BUILDING ACCOMMODATIONS FOR PHYSICALLY HANDICAPPED PERSONS

R 18.301
Source: 1997 AACS.

R 18.302
Source: 1997 AACS.

R 18.303
Source: 1997 AACS.

R 18.304
Source: 1997 AACS.

R 18.305
Source: 1997 AACS.

R 18.306
Source: 1997 AACS.

R 18.307
Source: 1997 AACS.

R 18.308
Source: 1997 AACS.

R 18.309
Source: 1997 AACS.

R 18.319
Source: 1979 AACS.

DEPARTMENT OF COMMUNITY HEALTH

CRIME VICTIM'S SERVICES COMMISSION

GENERAL

R 18.351
Source: 1983 AACS.

R 18.352
Source: 1983 AACS.

R 18.353
Source: 1983 AACS.

R 18.354
Source: 1983 AACS.

R 18.355
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R 18.366
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R 18.367
Source: 1983 AACS.

DEPARTMENT OF MANAGEMENT AND BUDGET

PROPERTY MANAGEMENT DIVISION

PARKING ON STATE PROPERTY

R 18.401
Source: 1982 AACS.

R 18.402
Source: 1982 AACS.

R 18.403
Source: 1982 AACS.

R 18.404
Source: 1982 AACS.

R 18.405
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R 18.406
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R 18.407
Source: 1982 AACS.

R 18.408
Source: 1982 AACS.

R 18.409
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R 18.410
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R 18.411
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R 18.412
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R 18.413
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R 18.414
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Source: 1982 AACS.

R 18.424
Source: 1982 AACS.

R 18.425
Source: 1982 AACS.

R 18.426
Source: 1982 AACS.

DEPARTMENT OF STATE POLICE

MICHIGAN JUSTICE TRAINING COMMISSION

GENERAL RULES

R 18.451
Source: 2006 AACS.

R 18.452
Source: 2006 AACS.

R 18.452a
Source: 2006 AACS.

R 18.453
Source: 2006 AACS.

R 18.454
Source: 2006 AACS.

R 18.455
Source: 2006 AACS.

R 18.455a
Source: 2006 AACS.

R 18.456
Source: 2006 AACS.

R 18.457
Source: 2006 AACS.

R 18.458
Source: 2006 AACS.

R 18.459
Source: 2006 AACS.

R 18.460
Source: 2006 AACS.

R 18.461
Source: 2006 AACS.

R 18.462
Source: 2006 AACS.

DEPARTMENT OF MANAGEMENT AND BUDGET

PROPERTY MANAGEMENT DIVISION

REAL ESTATE SERVICES

R 18.501
Source: 1983 AACS.

R 18.502
Source: 1983 AACS.

R 18.503
Source: 1983 AACS.

R 18.504
Source: 1983 AACS.

R 18.505
Source: 1983 AACS.

R 18.506
Source: 1983 AACS.

R 18.507

Source: 1983 AACS.

R 18.508
Source: 1983 AACS.

R 18.509
Source: 1983 AACS.

DEPARTMENT OF STATE POLICE

MICHIGAN COMMISSION ON LAW ENFORCEMENT STANDARDS

JUSTICE TRAINING FUND PROGRAMS

R 18.14901
Source: 2006 AACS.

R 18.14902
Source: 2006 AACS.

R 18.14903
Source: 2006 AACS.

R 18.14904
Source: 2006 AACS.

R 18.14905
Source: 2006 AACS.

R 18.14906
Source: 2006 AACS.

R 18.14907
Source: 2006 AACS.

R 18.14908
Source: 2006 AACS.

R 18.14909
Source: 2006 AACS.

R 18.14910
Source: 2006 AACS.

DEPARTMENT OF MANAGEMENT AND BUDGET

LOCAL GOVERNMENT CLAIMS REVIEW BOARD

GENERAL RULES

PART 1. GENERAL PROVISIONS

R 21.101
Source: 1987 AACS.

R 21.102
Source: 1987 AACS.

R 21.103

Source: 1987 AACS.

PART 2. PROCEDURES FOR FILING CLAIMS

R 21.201
Source: 1987 AACS.

R 21.202
Source: 1987 AACS.

R 21.203
Source: 1987 AACS.

R 21.204
Source: 1987 AACS.

R 21.205
Source: 1987 AACS.

R 21.206
Source: 1987 AACS.

R 21.207
Source: 1987 AACS.

R 21.208
Source: 1987 AACS.

R 21.209
Source: 1987 AACS.

R 21.210
Source: 1987 AACS.

R 21.211
Source: 1987 AACS.

PART 3. HEARINGS PROCEDURES

R 21.301
Source: 1987 AACS.

R 21.302
Source: 1987 AACS.

R 21.303
Source: 1987 AACS.

R 21.304
Source: 1987 AACS.

R 21.305
Source: 1987 AACS.

R 21.306
Source: 1987 AACS.

R 21.307
Source: 1987 AACS.

R 21.308
Source: 1987 AACS.

R 21.309
Source: 1987 AACS.

R 21.310
Source: 1987 AACS.

PART 4. DECLARATORY RULINGS

R 21.401
Source: 1987 AACS.

DEPARTMENT OF MANAGEMENT AND BUDGET

PURCHASING DIVISION

STATE PRINTING PREVAILING WAGE RATE

R 24.61
Source: 1979 AC.

R 24.62
Source: 1979 AC.

R 24.63
Source: 1979 AC.

R 24.64
Source: 1979 AC.

R 24.65
Source: 1979 AC.

R 24.66
Source: 1979 AC.

R 24.67
Source: 1979 AC.

R 24.68
Source: 1979 AC.

R 24.69
Source: 1979 AC.

DEPARTMENT OF STATE

BUREAU OF DEPARTMENT SERVICES

OPTICAL IMAGING SYSTEMS

R 24.401
Source: 2006 AACS.

R 24.402
Source: 2006 AACS.

R 24.403
Source: 2006 AACS.

R 24.404
Source: 2006 AACS.

R 24.405
Source: 2006 AACS.

R 24.406
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R 24.411
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R 24.412
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Source: 2006 AACS.

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Source: 2006 AACS.

R 24.418
Source: 2006 AACS.

R 24.419
Source: 2006 AACS.

DEPARTMENT OF STATE POLICE

STATE FIRE SAFETY BOARD

INSTALLATION AND CONSTRUCTION OF TUBULAR AND SPIRAL SLIDE FIRE ESCAPES

R 28.51
Source: 1997 AACS.

R 28.52
Source: 1997 AACS.

R 28.53
Source: 1997 AACS.

R 28.54
Source: 1997 AACS.

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R 28.72
Source: 1997 AACS.

R 28.73
Source: 1997 AACS.

DEPARTMENT OF STATE POLICE

CENTER RECORDS DIVISION

LICENSING THE SELLING, PURCHASING, POSSESSING, AND CARRYING OF CERTAIN FIREARMS

R 28.91
Source: 1979 AC.

R 28.92
Source: 1979 AC.

PLACES OF PUBLIC ASSEMBLAGE

R 28.101
Source: 1998-2000 AACS.

R 28.102
Source: 1998-2000 AACS.

R 28.103
Source: 1997 AACS.

R 28.104
Source: 1998-2000 AACS.

R 28.105
Source: 1998-2000 AACS.

R 28.106
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R 28.107
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R 28.109
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R 28.110
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R 28.111
Source: 1997 AACS.

R 28.112
Source: 1997 AACS.

STORAGE AND HANDLING OF EXPLOSIVES

R 28.131
Source: 1997 AACS.

R 28.132
Source: 1997 AACS.

R 28.135
Source: 1997 AACS.

R 28.138
Source: 1997 AACS.

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R 28.199
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R 28.200
Source: 1997 AACS.

FIRE MARSHAL DIVISION

FLAMMABLE LIQUIDS

R 28.601
Source: 1997 AACS.

R 28.602
Source: 1997 AACS.

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R 28.619
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R 28.620
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R 28.730
Source: 1997 AACS.

R 28.731
Source: 1997 AACS.

R 28.732
Source: 1997 AACS.

R 28.733
Source: 1997 AACS.

R 28.734
Source: 1997 AACS.

R 28.735
Source: 1997 AACS.

R 28.736
Source: 1997 AACS.

R 28.737
Source: 1997 AACS.

R 28.738
Source: 1997 AACS.

R 28.739
Source: 1997 AACS.

R 28.740
Source: 1997 AACS.

DEPARTMENT OF STATE POLICE

TRAFFIC SERVICES SECTION

SAFETY BELTS AND RESTRAINING DEVICES

R 28.901
Source: 1998-2000 AACS.

R 28.902
Source: 1998-2000 AACS.

R 28.903
Source: 1998-2000 AACS.

R 28.904
Source: 1998-2000 AACS.

R 28.905
Source: 1998-2000 AACS.

R 28.906
Source: 1998-2000 AACS.

R 28.907
Source: 1998-2000 AACS.

R 28.911
Source: 1998-2000 AACS.

R. 28.912
Source: 1998-2000 AACS.

DEPARTMENT OF STATE POLICE

TRAFFIC SERVICES SECTION

MOTORCYCLE HELMETS

R 28.951
Source: 1998-2000 AACS.

R 28.952
Source: 1998-2000 AACS.

R 28.953
Source: 1998-2000 AACS.

R 28.954
Source: 1998-2000 AACS.

R 28.955
Source: 1998-2000 AACS.

R 28.956
Source: 1998-2000 AACS.

R 28.957
Source: 1998-2000 AACS.

R 28.958
Source: 1998-2000 AACS.

R 28.959
Source: 1998-2000 AACS.

R 28.960
Source: 1998-2000 AACS.

R 28.961
Source: 1998-2000 AACS.

UNIFORM TRAFFIC CODE FOR CITIES, TOWNSHIPS, AND VILLAGES

CHAPTER 1. WORDS AND PHRASES DEFINED

R 28.1001
Source: 2002 AACS.

R 28.1002
Source: 1997 AACS.

R 28.1003
Source: 1997 AACS.

R 28.1004
Source: 1997 AACS.

CHAPTER 2. TRAFFIC ADMINISTRATION AND AUTHORITY

R 28.1101
Source: 2002 AACS.

R 28.1102
Source: 2002 AACS.

R 28.1103
Source: 2002 AACS.

R 28.1104
Source: 2002 AACS.

R 28.1105
Source: 2002 AACS.

R 28.1105a
Source: 2002 AACS.

R 28.1106
Source: 2002 AACS.

R 28.1107
Source: 2002 AACS.

R 28.1108
Source: 2002 AACS.

R 28.1109
Source: 2002 AACS.

R 28.1110
Source: 2002 AACS.

R 28.1110a
Source: 2002 AACS.

R 28.1110b
Source: 2002 AACS.

R 28.1110c
Source: 2002 AACS.

R 28.1110d
Source: 2002 AACS.

R 28.1110e
Source: 2002 AACS.

R 28.1110f
Source: 2002 AACS.

R 28.1110g
Source: 2002 AACS.

R 28.1110h
Source: 2002 AACS.

R 28.1110i
Source: 2002 AACS.

R 28.1111
Source: 1997 AACS.

R 28.1112
Source: 2002 AACS.

R 28.1113
Source: 2002 AACS.

R 28.1114

Source: 2002 AACS.

R 28.1115
Source: 2002 AACS.

R 28.1116
Source: 2002 AACS.

R 28.1117
Source: 2002 AACS.

R 28.1117a
Source: 2002 AACS.

R 28.1117b
Source: 2002 AACS.

R 28.1117c
Source: 2002 AACS.

R 28.1117d
Source: 2002 AACS.

R 28.1118
Source: 2002 AACS.

R 28.1119
Source: 2002 AACS.

R 28.1120
Source: 2002 AACS.

R 28.1121
Source: 2002 AACS.

R 28.1122
Source: 2002 AACS.

R 28.1123
Source: 2002 AACS.

R 28.1124
Source: 2002 AACS.

R 28.1125
Source: 2002 AACS.

R 28.1126
Source: 2002 AACS.

R 28.1127
Source: 2002 AACS.

R 28.1128
Source: 2002 AACS.

R 28.1129
Source: 2002 AACS.

R 28.1130
Source: 2002 AACS.

R 28.1130a
Source: 2002 AACS.

R 28.1131
Source: 2002 AACS.

R 28.1132
Source: 2002 AACS.

R 28.1133
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R 28.1134
Source: 2002 AACS.

R 28.1135
Source: 2002 AACS.

R 28.1136
Source: 2002 AACS.

R 28.1136a
Source: 2002 AACS.

R 28.1136b
Source: 2002 AACS.

R 28.1137
Source: 2002 AACS.

R 28.1138
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R 28.1139
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R 28.1140
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R 28.1141
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R 28.1142
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R 28.1143
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R 28.1144
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R 28.1145
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R 28.1146

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R 28.1147
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R 28.1148
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R 28.1149
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R 28.1150
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R 28.1151
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R 28.1152
Source: 2002 AACS.

R 28.1153
Source: 2002 AACS.

R 28.1154
Source: 2002 AACS.

R 28.1155
Source: 2002 AACS.

R 28.1156
Source: 2002 AACS.

R 28.1157
Source: 2002 AACS.

R 28.1158
Source: 2002 AACS.

CHAPTER 3. OBEDIENCE TO TRAFFIC REGULATIONS

R 28.1201
Source: 2002 AACS.

R 28.1202
Source: 2002 AACS.

R 28.1202a
Source: 2002 AACS.

R 28.1203
Source: 2002 AACS.

R 28.1204
Source: 2002 AACS.

R 28.1205
Source: 2002 AACS.

R 28.1206

Source: 2002 AACS.

R 28.1207
Source: 2002 AACS.

R 28.1208
Source: 2002 AACS.

R 28.1209
Source: 2002 AACS.

R 28.1210
Source: 2002 AACS.

R 28.1211
Source: 2002 AACS.

R 28.1212
Source: 2002 AACS.

CHAPTER 4. TRAFFIC-CONTROL DEVICES

R 28.1301
Source: 2002 AACS.

R 28.1302
Source: 2002 AACS.

R 28.1303
Source: 2002 AACS.

R 28.1304
Source: 2002 AACS.

R 28.1304a
Source: 2002 AACS.

R 28.1305
Source: 2002 AACS.

R 28.1306
Source: 2002 AACS.

R 28.1307
Source: 2002 AACS.

R 28.1308
Source: 2002 AACS.

R 28.1309
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R 28.1310
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R 28.1311
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R 28.1312
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R 28.1313
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R 28.1314
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R 28.1315
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R 28.1316
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R 28.1317
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R 28.1318
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R 28.1319
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R 28.1320
Source: 2002 AACS.

R 28.1321
Source: 2002 AACS.

R 28.1322
Source: 2002 AACS.

CHAPTER 5. RIGHTS AND DUTIES OF DRIVERS AND OTHERS

R 28.1401
Source: 2002 AACS.

R 28.1402
Source: 2002 AACS.

R 28.1403
Source: 2002 AACS.

R 28.1404
Source: 2002 AACS.

R 28.1404a
Source: 2002 AACS.

R 28.1405
Source: 2002 AACS.

R 28.1406
Source: 2002 AACS.

R 28.1407
Source: 2002 AACS.

R 28.1408
Source: 2002 AACS.

R 28.1409
Source: 2002 AACS.

R 28.1409a
Source: 2002 AACS.

R 28.1410
Source: 2002 AACS.

R 28.1411
Source: 2002 AACS.

R 28.1412
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R 28.1413
Source: 2002 AACS.

R 28.1414
Source: 2002 AACS.

R 28.1414a
Source: 2002 AACS.

R 28.1414b
Source: 2002 AACS.

R 28.1415
Source: 2002 AACS.

R 28.1415a
Source: 2002 AACS.

R 28.1415b
Source: 2002 AACS.

R 28.1415c
Source: 2002 AACS.

R 28.1415d
Source: 2002 AACS.

R 28.1415e
Source: 2002 AACS.

R 28.1415f
Source: 2002 AACS.

R 28.1415g
Source: 2002 AACS.

R 28.1416b
Source: 2002 AACS.

R 28.1416c
Source: 2002 AACS.

R 28.1417
Source: 2002 AACS.

R 28.1418
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R 28.1419
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R 28.1420
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R 28.1421
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R 28.1422
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R 28.1423
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R 28.1425
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R 28.1426
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R 28.1427
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R 28.1428
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R 28.1428a
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R 28.1429
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R 28.1430
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R 28.1431
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R 28.1432
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R 28.1435
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R 28.1436
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R 28.1436a
Source: 2002 AACS.

R 28.1437
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R 28.1438
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R 28.1439
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R 28.1440
Source: 2002 AACS.

R 28.1440a
Source: 2002 AACS.

R 28.1440b
Source: 2002 AACS.

R 28.1440c
Source: 2002 AACS.

R 28.1441
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R 28.1442
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R 28.1443
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R 28.1444
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R 28.1445
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R 28.1454
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R 28.1455
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R 28.1455a
Source: 2002 AACS.

R 28.1455b
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R 28.1456
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R 28.1457
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R 28.1458
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R 28.1459
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R 28.1460
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R 28.1461
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R 28.1462
Source: 2002 AACS.

R 28.1462a
Source: 2002 AACS.

R 28.1463
Source: 2002 AACS.

R 28.1463a
Source: 2002 AACS.

R 28.1464
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R 28.1465
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R 28.1466

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R 28.1467
Source: 2002 AACS.

R 28.1468
Source: 2002 AACS.

R 28.1469
Source: 2002 AACS.

R 28.1470
Source: 2002 AACS.

R 28.1470a
Source: 2002 AACS.

R 28.1471
Source: 2002 AACS.

R 28.1471a
Source: 2002 AACS.

R 28.1472
Source: 2002 AACS.

R 28.1473
Source: 2002 AACS.

R 28.1473a
Source: 2002 AACS.

R 28.1474
Source: 2002 AACS.

R 28.1476
Source: 2002 AACS.

R 28.1477
Source: 2002 AACS.

R 28.1478
Source: 2002 AACS.

R 28.1478a
Source: 2002 AACS.

R 28.1479
Source: 2002 AACS.

R 28.1480
Source: 2002 AACS.

R 28.1480a
Source: 2002 AACS.

R 28.1481
Source: 2002 AACS.

R 28.1482
Source: 1997 AACS.

R 28.1483
Source: 1997 AACS.

R 28.1484
Source: 1997 AACS.

R 28.1485
Source: 2002 AACS.

R 28.1486
Source: 1997 AACS.

R 28.1486a
Source: 1997 AACS.

R 28.1487
Source: 2002 AACS.

R 28.1487a
Source: 2002 AACS.

R 28.1488
Source: 2002 AACS.

R 28.1489
Source: 2002 AACS.

R 28.1490
Source: 2002 AACS.

R 28.1490a
Source: 2002 AACS.

R 28.1491
Source: 2002 AACS.

R 28.1492
Source: 2002 AACS.

R 28.1493
Source: 2002 AACS.

R 28.1494
Source: 2002 AACS.

R 28.1495
Source: 2002 AACS.

R 28.1496
Source: 2002 AACS.

R 28.1497
Source: 2002 AACS.

R 28.1498
Source: 2002 AACS.

R 28.1498a
Source: 2002 AACS.

R 28.1499
Source: 2002 AACS.

CHAPTER 6. OPERATION OF BICYCLES, MOTORCYCLES, MOPEDS, AND TOY VEHICLES

R 28.1601
Source: 2002 AACS.

R 28.1602
Source: 2002 AACS.

R 28.1603
Source: 2002 AACS.

R 28.1604
Source: 2002 AACS.

R 28.1604a
Source: 2002 AACS.

R 28.1605
Source: 2002 AACS.

R 28.1606
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R 28.1607
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R 28.1608
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R 28.1609
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R 28.1610
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R 28.1611
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R 28.1612
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R 28.1613
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R 28.1614
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R 28.1615
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R 28.1617
Source: 2002 AACS.

R 28.1617a
Source: 2002 AACS.

R 28.1618
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R 28.1619
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R 28.1620
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R 28.1621
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R 28.1622
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R 28.1623
Source: 2002 AACS.

R 28.1623a
Source: 2002 AACS.

R 28.1624
Source: 2002 AACS.

R 28.1625
Source: 2002 AACS.

R 28.1626
Source: 2002 AACS.

R 28.1627
Source: 2002 AACS.

CHAPTER 7. PEDESTRIANS' RIGHTS AND DUTIES

R 28.1701
Source: 2002 AACS.

R 28.1702
Source: 2002 AACS.

R 28.1703
Source: 2002 AACS.

R 28.1703a
Source: 2002 AACS.

R 28.1705
Source: 2002 AACS.

R 28.1706

Source: 2002 AACS.

R 28.1707
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R 28.1708
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R 28.1709
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R 28.1710
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R 28.1711
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R 28.1712
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R 28.1713
Source: 2002 AACS.

R 28.1714
Source: 2002 AACS.

R 28.1715
Source: 2002 AACS.

R 28.1716
Source: 2002 AACS.

CHAPTER 8. STOPPING, STANDING, AND PARKING

R 28.1801
Source: 2002 AACS.

R 28.1802
Source: 2002 AACS.

R 28.1803
Source: 2002 AACS.

R 28.1804
Source: 2002 AACS.

R 28.1805
Source: 2002 AACS.

R 28.1806
Source: 2002 AACS.

R 28.1807
Source: 2002 AACS.

R 28.1808
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R 28.1809

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R 28.1810
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R 28.1811
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R 28.1812
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R 28.1813
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R 28.1814
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R 28.1815
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R 28.1816
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R 28.1817
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R 28.1818
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R 28.1819
Source: 2002 AACS.

R 28.1820
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R 28.1821
Source: 2002 AACS.

R 28.1822
Source: 2002 AACS.

R 28.1823
Source: 2002 AACS.

R 28.1823a
Source: 2002 AACS.

R 28.1823b
Source: 2002 AACS.

R 28.1824
Source: 2002 AACS.

CHAPTER 9. MISCELLANEOUS

R 28.1901
Source: 2002 AACS.

R 28.1902

Source: 2002 AACS.

R 28.1903
Source: 2002 AACS.

R 28.1904
Source: 2002 AACS.

R 28.1905
Source: 2002 AACS.

CHAPTER 10. SNOWMOBILES

R 28.2001
Source: 2002 AACS.

R 28.2011
Source: 2002 AACS.

R 28.2012
Source: 2002 AACS.

R 28.2013
Source: 2002 AACS.

R 28.2014
Source: 2002 AACS.

R 28.2021
Source: 2002 AACS.

R 28.2022
Source: 2002 AACS.

R 28.2023
Source: 2002 AACS.

R 28.2031
Source: 2002 AACS.

R 28.2032
Source: 2002 AACS.

R 28.2033
Source: 2002 AACS.

R 28.2034
Source: 2002 AACS.

R 28.2035
Source: 2002 AACS.

R 28.2036
Source: 2002 AACS.

R 28.2037
Source: 2002 AACS.

R 28.2038

Source: 2002 AACS.

R 28.2039
Source: 2002 AACS.

R 28.2040
Source: 2002 AACS.

R 28.2041
Source: 2002 AACS.

R 28.2051
Source: 2002 AACS.

R 28.2060
Source: 2002 AACS.

R 28.2061
Source: 2002 AACS.

R 28.2071
Source: 2002 AACS.

R 28.2072
Source: 2002 AACS.

R 28.2073
Source: 2002 AACS.

R 28.2074
Source: 2002 AACS.

R 28.2075
Source: 2002 AACS.

FIRE MARSHAL DIVISION

LIQUEFIED PETROLEUM GASES

R 28.3801
Source: 1997 AACS.

R 28.3802
Source: 1997 AACS.

R 28.3803
Source: 1997 AACS.

R 28.3804
Source: 1997 AACS.

R 28.3805
Source: 1997 AACS.

R 28.3806
Source: 1997 AACS.

R 28.3807

Source: 1997 AACS.

R 28.3808
Source: 1997 AACS.

R 28.3809
Source: 1997 AACS.

R 28.3810
Source: 1997 AACS.

R 28.3811
Source: 1997 AACS.

R 28.3812
Source: 1997 AACS.

R 28.3813
Source: 1997 AACS.

R 28.3814
Source: 1997 AACS.

R 28.3815
Source: 1997 AACS.

R 28.3816
Source: 1997 AACS.

R 28.3817
Source: 1997 AACS.

R 28.3818
Source: 1997 AACS.

INVESTIGATIVE SERVICES DIVISION
PRIVATE SECURITY GUARDS

R 28.4001
Source: 2007 AACS.

R 28.4002
Source: 2007 AACS.

R 28.4003
Source: 2007 AACS.

R 28.4004
Source: 2007 AACS.

R 28.4005
Source: 2007 AACS.

R 28.4006
Source: 2007 AACS.

R 28.4007
Source: 2007 AACS.

R 28.4011

Source: 1979 AC.

R 28.4012
Source: 1979 AC.

R 28.4013
Source: 1979 AC.

R 28.4014
Source: 1979 AC.

R 28.4015
Source: 1979 AC.

R 28.4016
Source: 1979 AC.

R 28.4017
Source: 1979 AC.

R 28.4018
Source: 1979 AC.

R 28.4019
Source: 1979 AC.

LAW ENFORCEMENT OFFICERS TRAINING COUNCIL

SELECTION AND EMPLOYMENT STANDARDS

R 28.4101
Source: 2006 AACS.

R 28.4102
Source: 2006 AACS.

R 28.4102a
Source: 2006 AACS.

R 28.4103
Source: 2006 AACS.

R 28.4104
Source: 2006 AACS.

R 28.4105
Source: 2006 AACS.

R 28.4106
Source: 2006 AACS.

R 28.4107
Source: 2006 AACS.

R 28.4108
Source: 2006 AACS.

R 28.4109
Source: 2006 AACS.

R 28.4110
Source: 2006 AACS.

R 28.4111
Source: 2006 AACS.

R 28.4112
Source: 2006 AACS.

R 28.4113
Source: 2006 AACS.

R 28.4114
Source: 2006 AACS.

R 28.4115
Source: 2006 AACS.

R 28.4116
Source: 2006 AACS.

R 28.4117
Source: 2006 AACS.

R 28.4118
Source: 2006 AACS.

R 28.4119
Source: 2006 AACS.

R 28.4120
Source: 2006 AACS.

R 28.4121
Source: 2006 AACS.

LAW ENFORCEMENT OFFICER RECERTIFICATION

R 28.4151
Source: 2006 AACS.

R 28.4152
Source: 2006 AACS.

R 28.4153
Source: 2006 AACS.

R 28.4154
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R 28.4155
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R 28.4156
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R 28.4157
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R 28.4158
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R 28.4159
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R 28.4160
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R 28.4161
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R 28.4162
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R 28.4163
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R 28.4164
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R 28.4165
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R 28.4166
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R 28.4167
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R 28.4168
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R 28.4169
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R 28.4170
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R 28.4171
Source: 2006 AACS.

R 28.4172
Source: 2006 AACS.

R 28.4173
Source: 2006 AACS.

R 28.4174
Source: 2006 AACS.

R 28.4175
Source: 2006 AACS.

R 28.4199
Source: 2006 AACS.

STANDARDS FOR ACCEPTANCE OF CERTIFIED BASIC TRAINING AND EXPERIENCE RECEIVED IN STATES OTHER THAN MICHIGAN

R 28.4201
Source: 1997 AACS.

R 28.4202
Source: 1997 AACS.

R 28.4203
Source: 1997 AACS.

R 28.4204
Source: 1997 AACS.

R 28.4205
Source: 1997 AACS.

R 28.4206
Source: 1997 AACS.

PRESERVICE BASIC TRAINING PROGRAMS

R 28.4301 Rescinded.
History: 1981 AACS; 1995 AACS; rescinded MR 8, Eff. Apr. 24, 2008.

R 28.4302 Rescinded.
History: 1981 AACS; rescinded MR 8, Eff. Apr. 24, 2008.

R 28.4303 Rescinded.
History: 1981 AACS; rescinded MR 8, Eff. Apr. 24, 2008.

R 28.4304 Rescinded.
History: 1981 AACS; 1995 AACS; rescinded MR 8, Eff. Apr. 24, 2008.

R 28.4305 Rescinded.
History: 1981 AACS; rescinded MR 8, Eff. Apr. 24, 2008.

R 28.4306 Rescinded.
History: 1981 AACS; rescinded MR 8, Eff. Apr. 24, 2008.

R 28.4307 Rescinded.
History: 1981 AACS; rescinded MR 8, Eff. Apr. 24, 2008.

R 28.4308 Rescinded.
History: 1981 AACS; rescinded MR 8, Eff. Apr. 24, 2008.

R 28.4309 Rescinded.
History: 1981 AACS; 1989 AACS; 1995 AACS; rescinded MR 8, Eff. Apr. 24, 2008.

R 28.4310 Rescinded.
History: 1981 AACS; 1995 AACS; rescinded MR 8, Eff. Apr. 24, 2008.

R 28.4311 Rescinded.

History: 1981 AACS; rescinded MR 8, Eff. Apr. 24, 2008.

BASIC LAW ENFORCEMENT TRAINING PROGRAMS

R 28.4351 Rescinded.
History: 1982 AACS; 1995 AACS; rescinded MR 8, Eff. Apr. 24, 2008.

R 28.4352 Rescinded.
History: 1982 AACS; 1995 AACS; rescinded MR 8, Eff. Apr. 24, 2008.

R 28.4353 Rescinded.
History: 1982 AACS; 1995 AACS; rescinded MR 8, Eff. Apr. 24, 2008.

R 28.4354 Rescinded.
History: 1982 AACS; 1995 AACS; rescinded MR 8, Eff. Apr. 24, 2008.

R 28.4355 Rescinded.
History: 1982 AACS; 1995 AACS; rescinded MR 8, Eff. Apr. 24, 2008.

R 28.4356 Rescinded.
History: 1982 AACS; 1995 AACS; rescinded MR 8, Eff. Apr. 24, 2008.

R 28.4357 Rescinded.
History: 1982 AACS; 1995 AACS; rescinded MR 8, Eff. Apr. 24, 2008.

R 28.4358 Rescinded.
History: 1982 AACS; 1995 AACS; rescinded MR 8, Eff. Apr. 24, 2008.

R 28.4359 Rescinded.
History: 1982 AACS; 1995 AACS; rescinded MR 8, Eff. Apr. 24, 2008.

R 28.4360 Rescinded.
History: 1982 AACS; 1995 AACS; rescinded MR 8, Eff. Apr. 24, 2008.

R 28.4361 Rescinded.
History: 1982 AACS; 1995 AACS; rescinded MR 8, Eff. Apr. 24, 2008.

R 28.4362 Rescinded.
History: 1982 AACS; 1995 AACS; rescinded MR 8, Eff. Apr. 24, 2008.

R 28.4363 Rescinded.
History: 1982 AACS; 1995 AACS; rescinded MR 8, Eff. Apr. 24, 2008.

R 28.4364 Rescinded.
History: 1982 AACS; 1995 AACS; rescinded MR 8, Eff. Apr. 24, 2008.

R 28.4365 Rescinded.
History: 1982 AACS; 1995 AACS; rescinded MR 8, Eff. Apr. 24, 2008.

R 28.4366 Rescinded.
History: 1982 AACS; 1995 AACS; rescinded MR 8, Eff. Apr. 24, 2008.

AUTOMATED FINGERPRINT IDENTIFICATION SYSTEM POLICY COUNCIL

AUTOMATED FINGERPRINT IDENTIFICATION SYSTEM

R 28.5001
Source: 1993 AACS.

R 28.5002
Source: 1993 AACS.

R 28.5003
Source: 1993 AACS.

R 28.5004
Source: 1993 AACS.

R 28.5005
Source: 1993 AACS.

R 28.5006
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R 28.5007
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R 28.5008
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R 28.5010
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R 28.5011
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R 28.5012
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R 28.5013
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R 28.5014
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FORENSIC SCIENCE DIVISION

DNA PROFILING SYSTEM

R 28.5051
Source: 1998-2000 AACS.

R 28.5052
Source: 1998-2000 AACS.

R 28.5053
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R 28.5054
Source: 1995 AACS.

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R 28.5058
Source: 1995 AACS.

R 28.5059
Source: 1995 AACS.

CRIMINAL JUSTICE DATA CENTER

LAW ENFORCEMENT INFORMATION NETWORK

PART 1. GENERAL PROVISIONS

R 28.5101
Source: 1981 AACS.

R 28.5102
Source: 1981 AACS.

R 28.5103
Source: 1981 AACS.

R 28.5104
Source: 1981 AACS.

R 28.5105
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R 28.5111
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R 28.5112
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R 28.5113
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R 28.5114
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R 28.5115
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R 28.5116
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R 28.5117
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R 28.5118
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R 28.5119
Source: 1981 AACS.

R 28.5120
Source: 1981 AACS.

PART 2. ACCESS, ELIGIBILITY, AND DATA DISSEMINATION PROVISIONS

R 28.5201
Source: 1981 AACS.

R 28.5202
Source: 1981 AACS.

R 28.5203
Source: 1981 AACS.

R 28.5204
Source: 1981 AACS.

R 28.5205
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R 28.5206
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R 28.5207
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R 28.5211
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R 28.5213
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R 28.5214
Source: 1981 AACS.

PART 3. TERMINALS AND EQUIPMENT

R 28.5301
Source: 1981 AACS.

R 28.5302
Source: 1981 AACS.

R 28.5303
Source: 1981 AACS.

R 28.5304
Source: 1981 AACS.

R 28.5305
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R 28.5306
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R 28.5307
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R 28.5308
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R 28.5309
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R 28.5314
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R 28.5315
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R 28.5316
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R 28.5317
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R 28.5318
Source: 1981 AACS.

R 28.5319
Source: 1981 AACS.

PART 4. RECORDS

R 28.5401
Source: 1981 AACS.

R 28.5402
Source: 1981 AACS.

R 28.5403
Source: 1981 AACS.

R 28.5404
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R 28.5405
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R 28.5411
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R 28.5412
Source: 1981 AACS.

R 28.5413

Source: 1981 AACS.

R 28.5414
Source: 1981 AACS.

MICHIGAN COMMISSION ON LAW ENFORCEMENT STANDARDS

LAW ENFORCEMENT STANDARDS AND TRAINING

PART 1. DEFINITIONS

R 28.14101
Source: 2006 AACS.

R 28.14102
Source: 2006 AACS.

R 28.14103
Source: 2006 AACS.

PART 2. SELECTION AND EMPLOYMENT STANDARDS

R 28.14201
Source: 2006 AACS.

R 28.14202
Source: 2006 AACS.

R 28.14203
Source: 2006 AACS.

R 28.14204
Source: 2006 AACS.

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R 28.14206
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R 28.14207
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R 28.14208
Source: 2006 AACS.

R 28.14209
Source: 2006 AACS.

R 28.14210
Source: 2006 AACS.

R 28.14211
Source: 2006 AACS.

PART 3. BASIC RECRUIT LAW ENFORCEMENT TRAINING PROGRAMS

R 28.14301 Definitions.
Rule 301. As used in this part:

(a) “Academy operating contract” means a basic law enforcement training academy standard form contract executed between MCOLES and an academy under the administrative procedures act, section 7, 1969 PA 306, MCL 24.207(p).
(b) “Accredited community college, college, or university” means a community college, college, or university that has been accredited by an agency or association that has been recognized by the United States department of education.
(c) "Agency basic law enforcement training academy" means a law enforcement agency that is approved by the commission to provide a course of study for qualified recruits employed by that law enforcement agency.
(d) "Basic law enforcement training academy graduate" means a recruit who has completed the training and educational requirements of a commission approved basic law enforcement training academy.
(e) "Curriculum" means the commission mandated training objectives and training standards, as well as facilitator guides, assessment instruments, and other materials that are published by the commission for use in a commission approved basic law enforcement training academy.
(f) “Executive committee” means the committee of the commission established pursuant to the commission bylaws.
(g) “Preservice college basic law enforcement training academy” means a commission approved training and education program offered by an accredited community college, college, or university that incorporates the commission mandated curriculum in the academic course of study.
(h) “Program administrator” means a person who is employed by a city, county, township, village, corporation, college, community college, university, or state agency and who has been delegated authority to commit the agency to the basic law enforcement training academy proposal, annual operating plan, and the academy operating contract. The program administrator shall have management and oversight authority of the academy but shall not be the same person as the training director.
(i) "Regional basic law enforcement training academy" means a city, county, township, village, corporation, college, community college, university, or state agency that is approved by the commission to offer a basic law enforcement training program to preservice and employed recruits.
(j) “Satisfactory grade” means a grade of 70%, 2.0 on a 4.0 scale, or an institutional equivalent, or better grade, in each course included in the commission approved course of study in a preservice college basic training academy, unless specified otherwise in these rules.
(k) “Session” means a commission approved time frame during which a group of recruits are trained during basic law enforcement training at an academy.
(l) "Training and education advisory committee" means a group composed of knowledgeable persons, including law enforcement officials, who act in an advisory capacity regarding the establishment, guidance, and evaluation of a commission approved basic law enforcement training academy.
(m) “Training director” means that person who is responsible for the day-to-day operation of a basic law enforcement training academy.
(n) "Training objective" means a behavioral statement that describes a knowledge, skill, or ability to be acquired by the recruit during the delivery of the basic law enforcement training course of study.
History: MR 8, Eff. Apr. 24, 2008.

R 28.14302 Authorization of basic law enforcement training academy; approval by commission.

Rule 302. A city, county, township, village, corporation, college, community college, university, or state agency shall obtain commission authorization before proceeding to establish an agency or regional basic law enforcement training academy or a preservice college basic law enforcement training academy under R 28.14303.
History: MR 8, Eff. Apr. 24, 2008.

R 28.14303 Establishment of basic law enforcement training academy; program proposal.

Rule 303. (1) A city, county, township, village, corporation, college, community college, university, or state agency shall submit a written program proposal to establish a basic law enforcement training academy. The written program proposal shall be submitted to the commission in the manner prescribed by the commission not less than 90 days before the date of the commission meeting.

(2) The written program proposal shall contain, at a minimum, all of the following:
(a) A detailed description of the facilities and equipment to be used by recruits and instructors that will comply with the commission requirements.
(b) A description of the duties, responsibilities, and membership of the training and education advisory committee.
(c) The name, address, and position of the program administrator.
(d) The name, title, and qualifications of the training director.
(e) A description of the goals and objectives of the basic law enforcement training academy.
(f) A description of the nature and scope of the applicant's financial and philosophical commitment to the basic law

enforcement training academy.

(g) A copy of the academy rules governing recruit conduct.

(h) Identification of the academy requirements for an enrolled recruit.

(i) Identification of the course of study in the law enforcement training academy sessions.

(j) A statement recognizing the commission's authority to visit and inspect the basic law enforcement training academy and to be furnished requested records and documentation.

(k) Identification and descriptions of affiliations with agencies, colleges, and universities that will be a part of the basic law enforcement training academy.

(l) An estimate of the number of basic law enforcement training academy sessions that will be offered on a yearly basis.

(m) A statement documenting the need for establishment of the proposed academy that includes both of the following:

(i) The need by law enforcement agencies in the proposed service area.

(ii) The prospective recruits' need for the proposed academy.

(n) Documentation of support from the local law enforcement community within the geographic service area of the proposed academy.

(o) A statement describing the selection methods of prospective preservice and preservice college recruits.

(p) The projected starting and graduation dates of the first basic law enforcement training academy session.

(q) A definition of the geographical area that the proposed basic law enforcement training academy will serve.

(r) A projection of the number of recruits that will be enrolled in the academy on a yearly basis.

(s) Verification that acceptable live-in facilities are available in the vicinity of the basic law enforcement training academy.

(3) The entity submitting the program proposal in subrule (1) of this rule shall do all of the following with respect to the training and education advisory committee described in subrule (2)(b) of this rule.

(a) The training and education advisory committee shall be appointed before development of the program proposal and shall be consulted on all aspects of the application.

(b) The committee shall approve the program proposal before it is submitted to the commission. If the commission approves the program proposal, then the committee shall be consulted on a continuing basis regarding the operation of the academy.

(4) If the commission determines that the application is incomplete, then an amended application with amplification or clarification shall be filed within 30 days after the date of a request by the commission.

(5) Failure to comply with subrule (4) of this rule is grounds for denial of the application.

(6) Written commission approval of the program proposal shall be obtained before submitting an annual operating plan under R 28.14307.

(7) An approved basic law enforcement academy that fails to conduct an academy session for 3 years shall submit a new program proposal for commission approval to reestablish itself as an approved basic law enforcement training academy.

History: MR 8, Eff. Apr. 24, 2008.

R 28.14304 Establishment of preservice college basic training academy; program proposal.

Rule 304. In addition to the requirements in R 28.14303, the program proposal of a preservice college basic law enforcement training academy shall include all of the following:

(a) A copy of the community college, college, or university rules governing student conduct beyond those established by the commission.

(b) A description of how students will be selected for acceptance into the preservice college basic training academy at the applicant's institution.

(c) Identification of how and where the commission curriculum and additional community college, college, or university training objectives will be incorporated into the community college, college, or university course work.

(d) Identification of the requirements that an enrolled preservice college recruit shall meet to successfully complete the prescribed course of study at the community college, college, or university.

History: MR 8, Eff. Apr. 24, 2008.

R 28.14305 Establishment of agency basic law enforcement training academy; program proposal.

Rule 305. (1) The program proposal of a law enforcement agency that seeks to establish an agency basic law enforcement training academy shall comply with R 28.14303, except for R 28.14303(2) (b), (k), (m), (n), (o) and (q).

(2) In addition to the requirements of subrule (1) of this rule, the application shall include a statement documenting the need for establishment of the proposed academy by the law enforcement agency and the prospective recruits' need for the proposed academy.

History: MR 8, Eff. Apr. 24, 2008.

R 28.14306 Training director responsibilities.
Rule 306. The training director of an approved basic law enforcement training academy shall do all of the following:
(a) Ensure that the academy is operated in compliance with these rules and the academy operating contract.
(b) Ensure that each recruit is enrolled and maintains compliance with these rules and the academy operating contract.
History: MR 8, Eff. Apr. 24, 2008.

R 28.14307 Annual operating plan; academy requirements after approval; notice of change in structure or content of program; commission approval required.
Rule 307. A city, county, township, village, corporation, college, community college, university, or state agency authorized by the commission to establish a basic law enforcement training academy shall do the following:
(a) Submit an annual operating plan in the manner prescribed by the commission.
(b) Execute an academy operating contract.
(c) Final approval to operate under MCL 28.609(4)(b) is contingent upon formal acceptance of both subdivisions (a) and (b) of this rule by the commission.
(d) The training director of a basic law enforcement training academy shall notify the commission immediately of any anticipated change in the annual operating plan during an academy session.
(e) Written commission approval of the change shall be obtained before implementing a change.
History: MR 8, Eff. Apr. 24, 2008.

R 28.14308 Basic law enforcement training academy session; approval required.
Rule 308. A city, county, township, village, corporation, college, community college, university, or state agency approved by the commission as a basic law enforcement training academy shall obtain commission approval in the manner prescribed by the commission before initiating each basic law enforcement training session.
History: MR 8, Eff. Apr. 24, 2008.

R 28.14309 Revocation of commission approval; probation; suspension.
Rule 309. (1) A documented violation of these rules or the academy operating contract by an approved basic law enforcement training academy shall constitute cause for immediate review of continuing commission approval of the academy. Following the review, the MCOLES executive director may do any of the following:
(a) Revoke the approval of a basic law enforcement training academy.
(b) Suspend the basic law enforcement training academy approval to operate until specified terms and conditions are met.
(c) Place the basic law enforcement training academy on probation for a specific period of time or until specified terms and conditions are met.
(d) Take informal action to resolve the violation.
(2) The placement of an approved basic law enforcement training academy into a status as set forth in subrule (1) of this rule shall result in any of the following:
(a) An academy placed into a status of revocation shall not operate the basic law enforcement academy, regardless of any active recruit sessions. The academy shall not be eligible for approval until submission of an application under R 28.14302 and R 28.14303.
(b) An academy placed into a status of suspension shall not operate the basic law enforcement academy, regardless of any active recruit sessions. The academy shall not be eligible for approval to resume operation until specified terms and conditions set forth by the commission or the executive committee are met. Failure to meet the specified terms and conditions may result in further suspension or revocation of the academy.
(c) An approved basic law enforcement training academy placed into a status of probation may continue operation, including any active recruit sessions, provided that specified terms and conditions set forth by the executive director are met. Failure to meet the specified terms and conditions may result in suspension or revocation of approval of the academy.
(3) The executive director may authorize remedial action to minimize the impact of any academy sanction on recruits.
(4) The executive director shall immediately report his academy disciplinary action to the executive committee.
History: MR 8, Eff. Apr. 24, 2008.

R 28.14310 Basic law enforcement training academy; right to appeal denial, revocation, suspension, or probation.
Rule 310. (1) A basic law enforcement training academy shall have standing to appeal in writing a denial, revocation, suspension, or probation to the commission within 3 business days of issuance of the original notice.
(2) The executive committee shall act on behalf of the commission, if the commission is not scheduled to meet within 5

business days of receipt of an appeal. A decision by the executive committee or the commission is final.
History: MR 8, Eff. Apr. 24, 2008.

R 28.14311 Basic law enforcement training curriculum; course of study.

Rule 311. (1) The commission shall publish the basic law enforcement training curriculum.

(2) An approved basic law enforcement training academy shall teach the course of study approved by the commission.

(3) The approved academy shall provide, or provide access to, the curriculum to enrolled recruits.

History: MR 8, Eff. Apr. 24, 2008.

R 28.14312 Academy enrollment; compliance with standards; deadlines.

Rule 312. (1) An application for enrollment in a commission approved academy, as defined in R 28.14301 (c), (g), and (i), shall be completed in the manner prescribed by the commission and include a release of information for purpose of law enforcement licensing.

(2) The training director shall screen all prospective preservice recruits in a regional basic law enforcement training academy session or a preservice college basic law enforcement training academy to ensure compliance with the selection and employment standards in R 28.14203 (a) to (g) and R 28.14204, not later than 5 business days before the start of an academy session or a preservice college program. An academy shall conduct a background check, in lieu of a comprehensive background investigation, on the form or in the manner prescribed by the commission to determine preservice and preservice college recruit compliance with R 28.14203(e).

(3) Before enrolling a preservice or preservice college recruit in an academy session, the academy shall provide the recruit with an approved medical history form that shall be made available to the examining physician and shall become a part of the physician's medical record.

(4) An employing agency shall ensure compliance with R 28.14206 not later than 5 business days before enrolling a recruit in an academy session.

(5) Within 180 days before the start of an academy, the prospective recruit shall be fingerprinted and a search made of appropriate state and federal fingerprint files to disclose any criminal record.

(6) An oral interview shall be conducted to determine a preservice or preservice college prospective recruit's suitability for a law enforcement officer position and to assess the applicant's demeanor, background, and the ability to communicate.

(7) A prospective recruit intending to enroll in a basic law enforcement training academy session shall take and pass the commission's preenrollment physical fitness examination before, but be within 180 days before the start of the academy session.

(8) The results of the selection and employment standards screening shall be submitted to the commission using the MCOLES information and tracking network not later than 5 business days before the start of an academy session. Exceptions and comments made by the examining physician, an investigator, or other person on source documents shall be included in the MCOLES information and tracking network reporting.

(9) A prospective recruit who is not in full compliance with the selection and employment standards shall not participate in any recruit training or be enrolled by the commission. Any participation in an academic course at a preservice college training academy, without first having complied with this rule, shall not count toward completion of the course of study.

(10) Before enrollment, the prospective recruit shall have executed the commission's standards compliance verification affidavit and the applicant background affidavit.

History: MR 8, Eff. Apr. 24, 2008.

R 28.14313 Military preservice recruits.

Rule 313. (1) A prospective recruit seeking enrollment in a basic training academy who has prior military law enforcement experience may request a waiver of the requirements in R 28.14315(1)(b) to enroll in a commission approved regional or preservice college basic law enforcement training academy, if all of the following requirements are met:

(a) Have successfully completed a mandatory basic military police training academy.

(b) Have served competently as a military police officer, with full powers of arrest, the authority to carry firearms in the performance of his or her duties, while holding the specialty rank or assignment of a military police officer, or its equivalent, in 1of the 5 branches of the United States armed services, the national guard, or the reserves. The applicant shall have acted in the unrestricted full capacity of a military police officer for a minimum of 2,080 hours following training.

(c) Have been honorably discharged from active duty.

(2) Each requirement listed above shall be verified through a commission review of a properly executed DD-214 and the applicant's military service record.

History: MR 8, Eff. Apr. 24, 2008.

R 28.14314 Basic recruit requirements.

Rule 314. A basic law enforcement training recruit shall do the following:

(a) Comply with all of the attendance and academic requirements.

(b) Comply with all administrative rules, policies and procedures, and academy rules.

(c) Successfully complete the prescribed course of study during the approved academy session. An extension for the completion of the basic training program and testing requirements may be granted by the commission for a recruit under the following conditions:

(i) The recruit has a documented physical injury sustained during an academy training event that is temporary and medically prohibits the recruit from full and active participation in 1 or more components of the basic training program or testing.

(ii) The recruit has a documented family or medical emergency situation outside the parameters of the academy that reasonably prohibits the recruit from full and active participation in 1 or more components of the basic training program or testing.

(iii) The recruit shall not be absent for more than one-half of any individual physical skills training and not more than 10% of the overall session.

(iv) An application for an extension shall be filed with the commission by the training director for a pre-service recruit or by a law enforcement agency for an employed recruit. The application shall comply with the procedures outlined in the policies and procedures manual published pursuant to R 28.14211.

History: MR 8, Eff. Apr. 24, 2008.

R 28.14315 Preservice and preservice college recruit requirements.

Rule 315. (1) In addition to the requirements of R 28.14314, preservice and preservice college recruits shall do all of the following:

(a) Meet and maintain compliance with the selection and employment standards in R 28.14203 (a) to (g) and R 28.14204.

(b) Possess either an associate or baccalaureate degree before the commission will recognize the completion of the regional basic law enforcement training academy unless the requirement has been waived under R 28.14313.

(c) At the time of employment, comply with all of the selection and employment standards in R 28.14203 and R 28.14204.

History: MR 8, Eff. Apr. 24, 2008.

R 28.14316 Preservice college recruit requirements.

Rule 316. In addition to the requirements in R 28.14314 and R 28.14315, a preservice college recruit shall do all of the following:

(a) Meet the requirements established by the community college, college, or university for enrollment in its approved preservice college basic training academy.

(b) Complete the commission approved preservice college basic training course of study within a 1 year period.

(c) Attain a satisfactory grade in all preservice college courses, as evidenced by an official academic transcript.

(d) Graduate from an associate or baccalaureate degree program at an accredited community college, college, or university and have been awarded either an associate or baccalaureate degree before employment as a law enforcement officer.

History: MR 8, Eff. Apr. 24, 2008.

R 28.14317 Agency basic recruits.

Rule 317. In addition to the requirements in R 28.14314, an agency basic recruit shall comply with the following:

(a) Meet and maintain compliance with the selection and employment standards in R 28.14203 (a) to (h) and R 28.14204.

(b) Maintain employment with the enrolling agency through successful completion of the course of study.

(c) Complete the commission approved basic training course of study during the session within which the recruit is enrolled.

History: MR 8, Eff. Apr. 24, 2008.

R 28.14318 Recruit dismissals; grounds.

Rule 318. (1) After investigation and consultation with the commission, the training director shall do the following:

(a) Dismiss an enrolled recruit for failure to comply with or successfully complete the requirements in R 28.14314 to R 28.14317, as applicable.

(b) Dismiss an employed recruit for failure to do either of the following:

(i) Maintain employment with a law enforcement agency during the basic law enforcement training academy.

(ii) Maintain compliance with the minimum selection and employment standards in R 28.14203 (a) to (f) and R 28.14204 during the basic law enforcement training academy.

(2) The training director may dismiss an enrolled recruit after investigation and consultation with the commission for failure to comply with academy rules and regulations or the academy operating contract.

(3) An agency law enforcement basic training academy may dismiss an employed recruit for reasons unrelated to subrules (1) and (2) of this rule without consultation with the commission. The academy shall notify the commission of the dismissal and the reason for the dismissal.

(4) The commission may investigate and dismiss a recruit based on a violation of these rules, the academy operating contract, or the academy's rules and regulations as approved in the annual operating agreement.

History: MR 8, Eff. Apr. 24, 2008.

R 28.14319 Recruit dismissals; appeal; final decision.

Rule 319. (1) A recruit dismissal may be appealed in the following manner:

(a) An employer may appeal a dismissal of an employed recruit to the commission.

(b) A dismissed employed recruit shall not have standing to appeal the dismissal to the commission.

(2) A commission decision on appeal is final.

(3) A preservice or preservice college recruit may appeal a dismissal to the MCOLES executive director. The executive director's decision is final.

History: MR 8, Eff. Apr. 24, 2008.

R 28.14320 Recruit eligibility to take licensing exam; timeframe.

Rule 320. A basic law enforcement training recruit shall do the following:

(a) Comply with all of the requirements in R 28.14314 to R 28.14317, as applicable, before taking the licensing exam.

(b) Pass the licensing exam within 1 year of complying with the requirements in subdivision (a) of this subrule.

History: MR 8, Eff. Apr. 24, 2008.

R 28.14321 Recruit licensing eligibly timeframes.

Rule 321. A recruit who is not employed and licensed as a law enforcement officer within 1 year of completion of a basic law enforcement training academy session shall, before licensing, comply with the requirements of the recognition of prior basic law enforcement training and experience program. The executive director may extend the timelines in this subrule by not more than 90 days for either of the following reasons:

(a) If required by reexamination under R 28.14204(g) or R 28.14602.

(b) For good cause based on a prospective employing agency's written request. If an extension request is granted, the extension applies only to employment with the requesting agency.

History: MR 8, Eff. Apr. 24, 2008.

PART 4. RECOGNITION OF PRIOR BASIC LAW ENFORCEMENT TRAINING AND EXPERIENCE

R 28.14401

Source: 2006 AACS.

R 28.14402

Source: 2006 AACS.

R 28.14403

Source: 2006 AACS.

R 28.14404

Source: 2006 AACS.

R 28.14405

Source: 2006 AACS.

R 28.14406

Source: 2006 AACS.

R 28.14407
Source: 2006 AACS.

R 28.14408
Source: 2006 AACS.

R 28.14409
Source: 2006 AACS.

R 28.14410
Source: 2006 AACS.

R 28.14411
Source: 2006 AACS.

R 28.14412
Source: 2006 AACS.

R 28.14413
Source: 2006 AACS.

R 28.14414
Source: 2006 AACS.

PART 5. LICENSING, REPORTING, AND TRACKING

R 28.14501
Source: 2006 AACS.

R 28.14502
Source: 2006 AACS.

R 28.14503
Source: 2006 AACS.

R 28.14504
Source: 2006 AACS.

R 28.14505
Source: 2006 AACS.

R 28.14506
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R 28.14513
Source: 2006 AACS.

R 28.14514
Source: 2006 AACS.

R 28.14515
Source: 2006 AACS.

R 28.14516
Source: 2006 AACS.

PART 6. INVESTIGATIONS AND REVOCATIONS

R 28.14601
Source: 2006 AACS.

R 28.14602
Source: 2006 AACS.

R 28.14603
Source: 2006 AACS.

R 28.14604
Source: 2006 AACS.

R 28.14605
Source: 2006 AACS.

R 28.14606
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R 28.14607
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R 28.14608
Source: 2006 AACS.

R 28.14609
Source: 2006 AACS.

PART 7. CONTESTED CASE HEARINGS

R 28.14701
Source: 2006 AACS.

R 28.14702
Source: 2006 AACS.

MICHIGAN COMMISSION ON LAW ENFORCEMENT STANDARDS

PUBLIC SAFETY OFFICERS BENEFIT PROGRAM

R 28.14951
Source: 2005 AACS.

R 28.14952
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R 28.14953
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R 28.14954
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STATE FIRE SAFETY BOARD

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R 29.1
Source: 1997 AACS.

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R 29.298
Source: 1997 AACS.

SCHOOLS, COLLEGES, AND UNIVERSITIES

R. 29.301
Source: 1998-2000 AACS.

R. 29.302
Source: 1998-2000 AACS.

R. 29.303
Source: 1998-2000 AACS.

R. 29.304
Source: 1998-2000 AACS.

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R. 29.319
Source: 1998-2000 AACS.

R. 29.320
Source: 1998-2000 AACS.

R. 29.321
Source: 1998-2000 AACS.

FIRE FIGHTERS TRAINING COUNCIL

GENERAL RULES

R 29.401
Source: 1979 AC.

R 29.402
Source: 1979 AC.

R 29.403
Source: 1979 AC.

R 29.404
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R 29.405
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R 29.406
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R 29.409
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R 29.411
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R 29.412
Source: 1979 AC.

R 29.413
Source: 1979 AC.

R 29.414
Source: 1979 AC.

R 29.415
Source: 1981 AACS.

STATE FIRE SAFETY BOARD

FIRE INSPECTOR CERTIFICATION

R 29.501
Source: 1982 AACS.

R 29.502
Source: 1982 AACS.

R 29.503

Source: 1982 AACS.

R 29.504
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R 29.505
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R 29.506
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R 29.507
Source: 1982 AACS.

R 29.508
Source: 1982 AACS.

RADIOACTIVE MATERIAL TRANSPORTATION

R 29.551—R 29.560
Source: 1997 AACS.

NEW PENAL INSTITUTION FIRE SAFETY

PART 1. GENERAL PROVISIONS

R 29.601
Source: 1982 AACS.

R 29.602
Source: 1982 AACS.

R 29.603
Source: 1982 AACS.

R 29.604
Source: 1982 AACS.

R 29.605
Source: 1982 AACS.

PART 2. LIFE SAFETY CODE

R 29.621
Source: 1982 AACS.

R 29.622
Source: 1982 AACS.

HEALTH CARE FACILITIES

PART 1. GENERAL PROVISIONS

R 29.1001
Source: 1991 AACS.

R 29.1002
Source: 1991 AACS.

R 29.1003
Source: 1991 AACS.

R 29.1004
Source: 1991 AACS.

R 29.1005
Source: 1991 AACS.

R 29.1006
Source: 1991 AACS.

R 29.1007
Source: 1991 AACS.

R 29.1008
Source: 1991 AACS.

R 29.1009
Source: 1991 AACS.

R 29.1010
Source: 1991 AACS.

PART 2. FREESTANDING SURGICAL OUTPATIENT FACILITIES

R 29.1021
Source: 1991 AACS.

R 29.1022
Source: 1991 AACS.

R 29.1023
Source: 1991 AACS.

R 29.1024
Source: 1991 AACS.

PART 3. HOSPITALS, MENTAL HOSPITALS

R 29.1031
Source: 1991 AACS.

R 29.1032
Source: 1991 AACS.

PART 4. NURSING HOMES

R 29.1041
Source: 1991 AACS.

R 29.1042
Source: 1991 AACS.

PART 5. HOMES FOR THE AGED

R 29.1051
Source: 1991 AACS.

R 29.1052
Source: 1991 AACS.

R 29.1053
Source: 1991 AACS.

HEALTH CARE FACILITIES FIRE SAFETY

R 29.1101
Source: 1997 AACS.

R 29.1105
Source: 1997 AACS.

R 29.1110
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R 29.1115
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R 29.1120
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R 29.1431
Source: 1997 AACS.

R 29.1432
Source: 1997 AACS.

R 29.1433
Source: 1997 AACS.

R 29.1434
Source: 1997 AACS.

R 29.1435
Source: 1997 AACS.

R 29.1436
Source: 1997 AACS.

R 29.1438
Source: 1997 AACS.

R 29.1440
Source: 1997 AACS.

R 29.1441
Source: 1997 AACS.

DEPARTMENT OF CONSUMER AND INDUSTRY SERVICES

STATE FIRE SAFETY BOARD

STATE-OWNED AND LEASED BUILDINGS FIRE SAFETY

R 29.1501

Source: 2001 AACS.

R 29.1502
Source: 2001 AACS.

R 29.1503
Source: 2001 AACS.

R 29.1504
Source: 2001 AACS.

R 29.1506
Source: 2001 AACS.

R 29.1507
Source: 2001 AACS.

R 29.1508
Source: 2001 AACS.

R 29.1509
Source: 2001 AACS.

DEPARTMENT OF CONSUMER AND INDUSTRY SERVICES

STATE FIRE SAFETY BOARD

FIRE PREVENTION

PART 1. GENERAL PROVISIONS

R 29.1601
Source: 1998-2000 AACS.

R 29.1602
Source: 1998-2000 AACS.

R 29.1603
Source: 1998-2000 AACS.

R 29.1620
Source: 1998-2000 AACS.

PART 2. AMENDMENTS TO CHAPTERS 1 THROUGH 8 OF THE FIRE PREVENTION CODE

R 29.1621
Source: 1998-2000 AACS.

R 29.1622
Source: 1998-2000 AACS.

R 29.1623
Source: 1998-2000 AACS.

R 29.1624
Source: 1998-2000 AACS.

R 29.1625
Source: 1998-2000 AACS.

R 29.1627
Source: 1998-2000 AACS.

PART 3. OCCUPANCY FIRE SAFETY REQUIREMENTS

R 29.1631
Source: 1998-2000 AACS.

PART 4. SPECIAL PROCESSES AND MATERIAL HANDLING

R 29.1641
Source: 1998-2000 AACS.

DEPARTMENT OF CONSUMER AND INDUSTRY SERVICES

STATE FIRE SAFETY BOARD

NEW AND EXISTING PENAL INSTITUTIONS FIRE SAFETY

PART 1. GENERAL PROVISIONS

R 29.1701
Source: 2001 AACS.

R 29.1702
Source: 2001 AACS.

R 29.1703
Source: 2001 AACS.

R 29.1704
Source: 2001 AACS.

R 29.1705
Source: 2001 AACS.

R 29.1706
Source: 2001 AACS.

R 29.1707
Source: 2001 AACS.

R 29.1708
Source: 2001 AACS.

R 29.1710
Source: 2001 AACS.

R 29.1711
Source: 2001 AACS.

PART 2. NEW PENAL INSTITUTIONS
LIFE SAFETY CODE CHAPTERS 1 to 7, 14, 32, AND 33

R 29.1721
Source: 2001 AACS.

R 29.1722
Source: 2001 AACS.

R 29.1723
Source: 2001 AACS.

PART 3. EXISTING PENAL INSTITUTIONS LIFE SAFETY CODE CHAPTERS 1 to 7, 15, 32, AND 33

R 29.1731
Source: 2001 AACS.

R 29.1732
Source: 2001 AACS.

R 29.1733
Source: 2001 AACS.

DEPARTMENT OF CONSUMER AND INDUSTRY SERVICES

STATE FIRE SAFETY BOARD

HEALTH CARE FACILITIES FIRE SAFETY

PART 1. GENERAL PROVISIONS

R 29.1801
Source: 2001 AACS.

R 29.1802
Source: 2001 AACS.

R 29.1803
Source: 2001 AACS.

R 29.1804
Source: 2001 AACS.

R 29.1805
Source: 2001 AACS.

R 29.1806
Source: 2001 AACS.

R 29.1807
Source: 2001 AACS.

R 29.1808
Source: 2001 AACS.

R 29.1809
Source: 2001 AACS.

R 29.1810
Source: 2001 AACS.

PART 2. FREESTANDING SURGICAL OUTPATIENT FACILITIES

R 29.1821
Source: 2001 AACS.

R 29.1822
Source: 2001 AACS.

R 29.1823
Source: 2001 AACS.

R 29.1824
Source: 2001 AACS.

PART 3. HOSPITALS; MENTAL HOSPITALS

R 29.1831
Source: 2001 AACS.

R 29.1832
Source: 2001 AACS.

PART 4. NURSING HOMES

R 29.1841
Source: 2001 AACS.

R 29.1842
Source: 2001 AACS.

PART 5. HOMES FOR THE AGED

R 29.1851
Source: 2001 AACS.

R 29.1852
Source: 2001 AACS.

PART 6. MOBILE AND TRANSPORTABLE UNIT HEALTH CARE STRUCTURES

R 29.1861
Source: 2001 AACS.

DEPARTMENT OF CONSUMER AND INDUSTRY SERVICES

STATE FIRE SAFETY BOARD

NEW AND EXISTING SCHOOL, COLLEGE, AND UNIVERSITY FIRE SAFETY

PART 1. GENERAL PROVISIONS

R 29.1901
Source: 1998-2000 AACS.

R 29.1902
Source: 1998-2000 AACS.

R 29.1903
Source: 1998-2000 AACS.

R 29.1904
Source: 1998-2000 AACS.

R 29.1905
Source: 1998-2000 AACS.

R 29.1906
Source: 1998-2000 AACS.

R 29.1907
Source: 1998-2000 AACS.

R 29.1908
Source: 1998-2000 AACS.

R 29.1909
Source: 1998-2000 AACS.

R 29.1910
Source: 1998-2000 AACS.

PART 2. SCHOOLS

R 29.1921
Source: 1998-2000 AACS.

R 29.1922
Source: 1998-2000 AACS.

R 29.1923
Source: 1998-2000 AACS.

R 29.1924
Source: 1998-2000 AACS.

PART 3. COLLEGES AND UNIVERSITIES

R 29.1931
Source: 1998-2000 AACS.

R 29.1932
Source: 1998-2000 AACS.

R 29.1933
Source: 1998-2000 AACS.

R 29.1934
Source: 1998-2000 AACS.

DEPARTMENT OF CONSUMER AND INDUSTRY SERVICES

STATE FIRE SAFETY BOARD

DORMITORY FIRE SAFETY FOR SCHOOLS, COLLEGES, AND UNIVERSITIES

PART 1. GENERAL PROVISIONS

R 29.2001
Source: 1998-2000 AACS.

R 29.2002
Source: 1998-2000 AACS.

R 29.2003
Source: 1998-2000 AACS.

R 29.2004
Source: 1998-2000 AACS.

R 29.2005
Source: 1998-2000 AACS.

R 29.2006
Source: 1998-2000 AACS.

R 29.2007
Source: 1998-2000 AACS.

R 29.2008
Source: 1998-2000 AACS.

R 29.2009
Source: 1998-2000 AACS.

R 29.2010
Source: 1998-2000 AACS.

PART 2. NEW SCHOOL, COLLEGE, AND UNIVERSITY DORMITORY FACILITIES

R 29.2021
Source: 1998-2000 AACS.

R 29.2022
Source: 1998-2000 AACS.

PART 3. EXISTING SCHOOL, COLLEGE, AND UNIVERSITY DORMITORY FACILITIES

R 29.2031
Source: 1998-2000 AACS.

R 29.2032
Source: 1998-2000 AACS.

DEPARTMENT OF ENVIRONMENTAL QUALITY

UNDERGROUND STORAGE TANK DIVISION

UNDERGROUND STORAGE TANK INSPECTION DELEGATION AND CERTIFICATION

R 29.2071
Source: 1993 AACS.

R 29.2072
Source: 1993 AACS.

R 29.2073
Source: 1993 AACS.

R 29.2074
Source: 1993 AACS.

R 29.2075
Source: 1993 AACS.

R 29.2076
Source: 1993 AACS.

R 29.2077
Source: 1993 AACS.

UNDERGROUND STORAGE TANK SYSTEMS

R 29.2101 Adoption of standards by reference.
Rule 1. The provisions of 40 C.F.R. part 280, subparts A to H, (2006), entitled "Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks," as amended by 54 F.R. November 9, 1989, pages 47081 to 47092, and as amended by 58 F.R. February 18, 1993, pages 9050 to 9059, are adopted by reference in these rules. Copies of the adopted regulations may be obtained from the Department of Environmental Quality, Waste and Hazardous Materials Division, P.O. Box 30241, Lansing, Michigan 48909-7741, at a cost as of the time of adoption of these rules of $50.00 per copy plus $20.00 handling, plus shipping, or from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402, 202-512-1800, at a cost as of the time of adoption of these rules of $50.00.
History: 1998-2000 AACS; 2008 MR 12, Eff. June 27, 2008.

AMENDMENTS TO ADOPTED FEDERAL REGULATIONS
SUBPART A. PROGRAM SCOPE AND INTERIM PROHIBITION

R 29.2103 Applicability.
Rule 3. Section 280.10 is amended to read as follows:
Section 280.10. (a) The requirements of these rules apply to all owners and operators of a UST system.
(b) Deleted.
(c) Deferrals. Subparts B, C, D, E, and G do not apply to any of the following types of UST systems:
(1) A wastewater treatment tank system.
(2) Any UST system which contains radioactive material and which is regulated under the provisions of the atomic energy act of 1954, as amended, 42 U.S.C. §2011 et seq.
(3) Any UST system that is part of an emergency generator system at nuclear power generation facilities regulated by the nuclear regulatory commission under the provisions of 10 C.F.R. part 50, appendix A, (1989).
(4) Airport hydrant fuel distribution systems.
(5) UST systems that have field-constructed tanks.
(d) Deleted**.**
(e) Prohibitions.
(1) Upon notification by the implementing agency, a person shall not deliver a regulated substance into any UST system if the system is not in compliance with these rules. Such notification may include verbal or written communication or an affixed written notification on the UST system.
(2) A person shall not tamper with, remove, or disregard written notification affixed to the UST system.
(3) Any UST system or practice that is not in compliance with these rules shall be considered to be in violation of these rules.
(4) An owner and operator shall not continue to use a UST system that is causing a release. If the release is from the piping,

then the piping shall be emptied of any liquid product until repaired and tested or replaced. If the release is from the tank, or if the origin of the release cannot be determined, then the UST system shall be expeditiously emptied of all liquid product until repaired and tested or replaced.
(f) An implementing agency may order, at the expense of the owner, a tightness test of a UST system in accordance with the provisions of sections 280.43(c) and 280.44(b), the installation of dry well test holes, or the emptying of a UST system in accordance with the provisions of section 280.71 when there is reason to believe that the UST system is releasing a regulated substance.
(g) UST systems installed on or before January 3, 1991, in accordance with the provisions of 40 C.F.R. part 280, (1988), the United States environmental protection agency UST rules, shall be deemed to be in compliance with new UST system requirements.
(h) A person may request a variation of the application of a rule by applying to the department with a satisfactory explanation of why compliance is not possible. If the requested variation involves a substantive rule as opposed to a procedural rule, such as time deadlines, then the department shall notify affected state and local agencies of the nature of, and the reasons for, the request and consider any input provided within 10 days of receipt of the notice by affected state and local agencies. The department may make a variation upon finding that the variation does not result in an increased hazard to life, property, or the environment. The findings shall be transmitted to the person requesting the variation and shall be maintained at the facility.
(i) A person aggrieved by a final decision of the department on a request for variance may appeal to the circuit court within 21 days of the decision.
(j) All UST systems shall comply with R 29.4103 to R 29.4104 and R 29.4201 to R 29.4319 of the Michigan Administrative Code. These rules shall supersede any conflicting provision of R 29.4103 to R 29.4101 and R 29.4201 to R 29.4319 of the Michigan Administrative Code.
(k) UST systems installed on or before the effective date of these amendatory rules in accordance with the provisions of R 29.2101 to R 29.2169 then in effect shall be deemed to be in compliance with these amendatory rules.
History: 1998-2000 AACS; 2008 MR 12, Eff. June 27, 2008.

R 29.2105
Source: 1990 AACS.

R 29.2107 Definitions.
Rule 7. Section 280.12 is amended to read as follows:
Section 280.12.
"Aboveground release" means any release to the surface of the land or to surface water. This includes, but is not limited to, releases from the aboveground portion of an UST system and aboveground releases associated with overfills and transfer operations as the regulated substance moves to or from an UST system.
"Active UST system" means a UST system that has been in use within the past 12 months.
"Ancillary equipment" means any devices including, but not limited to, such devices as piping, fittings, flanges, valves, and pumps used to distribute, meter, or control the flow of regulated substances to and from an UST.
"Approved" means acceptable to the department, unless specifically indicated otherwise in the rule.
"Belowground release" means any release to the subsurface of the land or to groundwater. This includes releases such as those from the belowground portions of an underground storage tank system and belowground releases associated with overfills and transfer operations as the regulated substance moves to or from an underground storage tank.
"Beneath the surface of the ground" means beneath the ground surface or otherwise covered with earthen materials.
"Cathodic protection" is a technique to prevent corrosion of a metal surface by making that surface the cathode of an electrochemical cell. For example, a tank system can be cathodically protected through the application of either galvanic anodes or impressed current.
"Cathodic protection tester" means a person who can demonstrate an understanding of the principles and measurements of all common types of cathodic protection systems as applied to buried or submerged metal piping and tank systems and who has education and experience in soil resistivity, stray current, structure-to-soil potential, and component electrical isolation measurements of buried metal piping and tank systems. The person shall be certificated as being qualified by the national association of corrosion engineers (NACE) international, steel tank institute (STI), or any other organization that is acceptable to the department.
"CERCLA" means the comprehensive environmental response, compensation, and liability act of 1980, as amended, 42 U.S.C. §9601 et seq.
"Compatible" means the ability of two or more substances to maintain their respective physical and chemical properties upon contact with one another for the design life of the tank system under conditions likely to be encountered in the UST.
"Connected piping" means all underground piping, including valves, fittings, joints, flanges, and flexible connectors attached

to a tank system, through which regulated substances flow. For the purpose of determining how much piping is connected to any individual UST system, the piping that joins 2 UST systems shall be allocated equally between the systems.

"Consumptive use," with respect to heating oil, means consumed on the premises.

"Corrosion expert" means a person who, by reason of thorough knowledge of the physical sciences and the principles of engineering and mathematics acquired by a professional education and related practical experience, is qualified to engage in the practice of corrosion control on buried or submerged metal piping systems and metal tanks. The person shall be certificated as being qualified by the NACE international as a senior corrosion technologist, a cathodic protection specialist, or a corrosion specialist or be a registered professional engineer who has certification or licensing that includes education and experience in corrosion control of buried or submerged metal piping systems and metal tanks.

"Deminimis concentration." A UST meets the requirements of exclusion (xv) for deminimis concentration of regulated substances, under the definition of "UST system," if both of the following conditions are met:

(i) The concentration of a regulated substance in a UST system, when mixed with a nonregulated substance, is less than 110 gallons of regulated substance when the storage tank is full.

(ii) The UST system, of any size or capacity, contains less than the reportable quantity of hazardous substance or substances in the product stored, as identified in the United States environmental protection agency Table 302.4 list of hazardous substances and reportable quantities, when the storage tank is full.

"Deminimis quantity" means that the total quantity of a hazardous substance mixed with petroleum in a full UST is less than the reportable quantity for the substance as specified on the CERCLA list. This does not apply to motor fuel additives and blends that are added at the refinery or shipped via pipeline with the finished product, or both.

"Department" means the department of environmental quality.

"Dielectric material" means a material that does not conduct direct electrical current. Dielectric coatings are used to electrically isolate UST systems from the surrounding soils. Dielectric fittings are used to electrically isolate portions of the UST system, for example, the tank from piping.

"Director" means the director of the department.

"Electrical equipment" means underground equipment that contains dielectric fluid that is necessary for the operation of equipment such as transformers and buried electrical cable.

"Excavation zone" means the volume containing the tank system and backfill materials bounded by the ground surface, walls, and placed at the time of installation.

"Existing tank system" means a tank system used to contain an accumulation of regulated substances or for which installation is considered to have commenced if the owner or operator has obtained all federal, state, and local approvals or permits necessary to begin physical construction of the site or installation of the tank system and either a continuous on-site physical construction or installation program has begun or the owner operator has entered into contractual obligations - that cannot be canceled or modified without substantial loss. These obligations include the physical construction at the site or installation of the tank system to be completed within a reasonable time.

"Farm tank" means a tank located on a tract of land devoted to the production of crops or raising animals, including fish, and associated residences and improvements. A farm tank shall be located on the farm property. "Farm" includes fish hatcheries, rangeland, and nurseries that have growing operations.

"Field-constructed tank" means a tank which has a capacity of more than 50,000 gallons and which is constructed on-site.

"Flow-through process tank" means a tank that forms an integral part of a production process through which there is a steady, variable, recurring, or intermittent flow of materials during the operation of the process and the tank is utilized to carry out or control the heating, cooling, mixing, blending, separating, metering, or chemical action of materials. The processing is done on a regular basis and it is the primary function of the tank. Flow-through process tanks do not include tanks used for the storage of materials before their introduction into the production process or for the storage of finished products or by-products from the production process or tanks that are only used to recirculate materials.

"Free product" means a regulated substance that is present as a nonaqueous phase liquid (for example, liquid not dissolved in water).

"Gathering lines" means any pipeline, equipment, facility, or building used in the transportation of oil or gas during oil or gas production or gathering operations.

"Hazardous substance UST system" means an underground storage tank system that contains a hazardous substance defined in section 101(14) of the comprehensive environmental response compensation and liability act of 1980, 42 U.S.C. 9601, (but not including waste under subtitle C) or any mixture of such substances and petroleum, unless the mixture is a petroleum product.

"Heating oil" means petroleum that is no. 1, no. 2, no. 4-light, no. 4-heavy, no. 5-light, no. 5-heavy, and no. 6 technical grades of fuel oil; other residual fuel oils, including navy special fuel oil and bunker C; and other fuels when used as substitutes for one of these fuel oils. Heating oil is typically used in the operation of heating equipment, boilers, or furnaces.

"Hydraulic lift tank" means a tank holding hydraulic fluid for a closed-loop mechanical system that uses compressed air or

hydraulic fluid to operate lifts, elevators, and other similar devices.
"Implementing agency" means the department or a local unit of government delegated authority under Part 211 of Act No. 451 of the Public Acts of 1994, as amended, being §324.21101 et seq. of the Michigan Compiled Laws.
"Integral secondary containment system" means a tank or piping system that has the primary containment tank or piping system fully jacketed by an external, 360-degree, unbonded, nonmetallic material, that provides for external corrosion protection, liquid interstitial space communication and monitoring, and product compatibility to contain a release from the primary containment tank or piping system. The jacketing material for the tank shall be a minimum of 100 mils in thickness. The integral secondary containment system shall be acceptable to the department**.**
"In use" means that an underground storage tank or underground storage tank system contains more than 2.5 centimeters (1 inch) of a regulated substance.
"Liquid trap" means sumps, well cellars, and other traps used in association with oil and gas production, gathering, and extraction operations, including gas production plants, for the purpose of collecting oil, water, and other liquids. These liquid traps may temporarily collect liquids for subsequent disposition or reinjection into a production or pipeline stream or may collect and separate liquids from a gas stream.
"Local unit of government" means a city, village, township, county, or governmental authority or any combination of cities, villages, townships, counties, or governmental authorities**.**
"Maintenance" means the normal operational upkeep to prevent an underground storage tank system from releasing product.
"Motor fuel" means petroleum or a petroleum-based substance which is motor gasoline, aviation gasoline, no. 1 or no. 2 diesel fuel, or any grade of gasohol and which is typically used in the operation of a motor vehicle.
"Motor fuel dispenser system replacement" means to remove an existing dispenser and the equipment necessary to connect the dispenser to the UST system and install a new dispenser and the equipment necessary to connect the dispenser to the UST system. This equipment includes the following:
(a) Flexible connectors.
(b) Risers.
(c) Check valves, shear valves, and unburied risers.
(d) Other transitional components that are beneath the dispenser and connect the dispenser to the piping.
"New tank system" means a tank system which will be used to contain an accumulation of regulated substances and for which installation has commenced after December 22, 1988. See also "existing tank system."
"Noncommercial purposes" with respect to motor fuel, means, not for resale.
"On the premises where stored," with respect to heating oil, means UST systems located on the same property where the stored oil is used.
"Operational life" means the period beginning when installation of the tank system has commenced until the time the tank system is properly closed under subpart G.
"Operator" means a person who is presently, or was at the time of a release, in control of, or responsible for, the operation of an underground storage tank system.
"Out of service" (see definition of "out of use").
"Out of use" means that an underground storage tank system is not in use. (See definition of "in use"). The system shall be reported as either temporarily closed or permanently closed.
"Overfill release" means a release that occurs when a tank is filled beyond its capacity and results in a discharge of the regulated substance into the environment.
"Owner" means a person who holds, or at the time of a release held, a legal, equitable, or possessory interest of any kind in an underground storage tank system or in the property on which a UST system is located, such as, a trust, vendor, vendee, lessor, or lessee. However, "owner" does not include a person or a regulated financial institution acting in a fiduciary capacity that, without participating in the management of an underground storage tank system and without being otherwise engaged in petroleum production, refining, or marketing relating to the underground storage tank system, holds indicative of ownership primarily to protect the person's or the regulated financial institution's security interest in the underground storage tank system or the property on which it is located or to implement the terms of a trust agreement.
"Person" means any of the following:
(a) An individual.
(b) A partnership.
(c) A joint venture.
(d) A trust.
(e) A firm.
(f) A joint stock company.
(g) A corporation, including a government corporation.
(h) An association.

(i) A local unit of government.
(j) A commission.
(k) The state.
(l) A political subdivision of a state.
(m) An interstate body.
(n) The federal government.
(o) A political subdivision of the federal government.
(p) Any other legal entity.
"Petroleum UST system" means an underground storage tank system that contains petroleum or a mixture of petroleum that has additives and deminimis quantities of other regulated substances. The systems include those containing any of the following:
(a) Motor fuels.
(b) Jet fuels.
(c) Distillate fuel oils.
(d) Residual fuel oils.
(e) Lubricants.
(f) Used oils.
"Pipe" or "piping" means a hollow cylinder or tubular conduit that is constructed of nonearthen materials that routinely contains and conveys regulated substances from the tank or tanks to the dispenser or dispensers or other end-use equipment and includes connected piping**.** Piping does not include any of the following:
(a) Vent pipe.
(b) Vapor recovery lines.
(c) Fill lines that are not remote fill lines and that do not routinely contain regulated substances.
"Piping replacement" means to remove and put back in more than 50% of piping connected to a single underground tank.
"Pipeline facilities," including gathering lines means new and existing pipe rights-of-way and any associated equipment, facilities, or buildings.
"Public water supply" has the same meaning as defined in Act No. 399 of the Public Acts of 1976, as amended, being §325.1001 et seq. of the Michigan compiled Laws, and rules promulgated under Act No. 399 of the Public Acts of 1976.
"Regulated substance" means either of the following:
(a) A substance defined in section 101(14) of title I of the comprehensive environmental response, compensation and liability act of 1980, Public Law 96-510, 42 U.S.C. §9601 et seq., but not including a substance regulated as a hazardous waste under subtitle C of the solid waste disposal act of 1965, title II of Public Law 89-272, as amended, 42 U.S.C. §6921 to §6931 and §6933 to §6939b.
(b) Petroleum, including crude oil or any fraction of crude oil that is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute). Petroleum includes mixtures of petroleum that have deminimis quantities of other regulated substances and also includes petroleum-based substances comprised of a complex blend of hydrocarbons derived from crude oil through processes of separation, conversion, upgrading, or finishing, such as any of the following:
(i) Motor fuels.
(ii) Jet fuels.
(iii) Distillate fuel oils.
(iv) Residual fuel oils.
(v) Lubricants.
(vi) Petroleum solvents.
"Release" means any spilling, leaking, emitting, discharging, escaping, leaching, or disposing from an UST into groundwater, surface water, or subsurface soils.
"Release detection" means determining whether a release of a regulated substance has occurred from the UST system into the environment or into the interstitial space between the UST system and its secondary barrier or secondary containment around it.
"Repair" means to restore a tank or UST system component. Repairs that involve the replacement of more than 50% of the length of any underground piping between the tank and the dispenser at any 1 time shall be considered a replacement of the underground piping and shall meet the requirements of the new UST system underground piping in section 280.20(b).
"Residential tank" means a tank located on property used primarily for dwelling purposes.
"SARA" means the superfund amendments and reauthorization act of 1986, 42 U.S.C. §9601 et seq. as amended by 1986 Public Law 99-499.
"Secondary containment," where required for a petroleum UST system, means at least a 330-degree double-wall tank or a

360-degree integral secondary containment system and, for piping, a 360-degree double-wall pipe or a 360-degree integral secondary containment system or other method of containment indicated in section 280.42(b)(5). Secondary containment systems shall meet the requirements of section 280.42(b)(1), (2), and (4).

"Septic tank" is a watertight covered receptacle designed to receive or process, through liquid separation or biological digestion, the sewage discharged from a building sewer. The effluent from such receptacle is distributed for disposal through the soil and settled solids and scum from the tank are pumped out periodically and hauled to a treatment facility.

"State fire marshal" deleted.

"Storm-water or wastewater collection system" means piping, pumps, conduits, and any other equipment necessary to collect and transport the flow of surface water runoff resulting from precipitation or domestic, commercial, or industrial wastewater to and from retention areas or any areas where treatment is designated to occur. The collection of storm water and wastewater does not include treatment, except where incidental to conveyance.

"Surface impoundment" means a natural topographic depression, manmade excavation, or diked area formed primarily of earthen materials, although it may be lined with man-made materials, that is not an injection well.

"Tank" means a stationary device designed to contain an accumulation of regulated substances and constructed of non-earthen materials, for example, concrete, steel, or plastic, that provide structural support.

"Under-dispenser containment (UDC)" means containment underneath a dispenser that will prevent leaks from the dispenser from reaching soil or groundwater. Such containment must meet all of the following:

(a) Be liquid-tight on its sides, bottom, and at any penetrations.

(b) Be compatible with the substance conveyed by the piping.

(c) Allow for visual inspection and access to the components in the containment system and/or be monitored.

(d) Prevent the intrusion of surface water.

"Underground area" means an underground room, such as a basement, cellar, shaft, or vault, providing enough space for physical inspection of the exterior of the tank situated on or above the surface of the floor.

"Underground release" means any belowground release.

"Underground storage tank replacement" means to remove an existing tank and install a new tank.

"Underground storage tank system" or "UST system" or "tank system" means a tank or combination of tanks, including underground pipes connected to the tank or tanks or underground ancillary equipment containment systems, if any, which is, was, or may have been, used to contain an accumulation of regulated substances and the volume of which, including the volume of underground pipes connected to the tank or tanks, is 10% or more beneath the surface of the ground. An underground storage tank system does not include any of the following:

(i) A farm or residential tank which has a capacity of 1,100 gallons or less and which is used for storing motor fuel for noncommercial purposes.

(ii) A tank used for storing heating oil for consumptive use on the premises where the oil is stored.

(iii) A septic tank.

(iv) A pipeline facility, including gathering lines, regulated under either of the following:

(A) The natural gas pipeline safety act of 1968, Public Law 90-481, as amended, 49 U.S.C. appendix §1671 to §1677, §1679A to §1682, and §1683 to §1687.

(B) Sections 201 to 215 and 217 of the hazardous liquid pipeline safety act of 1979, as amended, title II of Public Law 96-129, 49 U.S.C. appendix §2001.

(v) A surface impoundment, pit, pond, or lagoon.

(vi) A stormwater or wastewater collection system.

(vii) A flow-through process tank.

(viii) A liquid trap or associated gathering lines directly related to oil or gas production and gathering operations.

(ix) A storage tank situated in an underground area, such as a basement, cellar, mine, drift, shaft, or tunnel, if the storage tank is situated on or above the surface of the floor.

(x) Any pipes connected to a tank that is described in subparagraphs (i) to (ix) and (xi) to (xvi) of this paragraph.

(xi) An underground storage tank system holding hazardous wastes listed or identified under the provisions of subtitle C of the solid waste disposal act of 1965, title II of Public Law 89-272, as amended, 42 U.S.C. §6921 to §6931 and §6933 to §6939b, or a mixture of the hazardous waste and other regulated substances.

(xii) A wastewater treatment tank system that is part of a wastewater treatment facility regulated under the provisions of section 307(b) of title III or section 402 of title IV of the federal water pollution control act of 1972, as amended, 33 U.S.C. §1317 and §1342.

(xiii) Equipment or machinery that contains regulated substances for operational purposes, such as hydraulic lift tanks and electrical equipment tanks.

(xiv) An underground storage tank system that has a capacity of 110 gallons or less.

(xv) An underground storage tank system that contains a deminimis concentration of regulated substances. Please see the

definition of "deminimis concentration."
(xvi) An emergency spill or overflow containment underground storage tank system that is emptied within 10 days after use.
"Underground tank" means an underground storage tank, except that such term does not include underground piping.
"Upgrade" means the addition or retrofit of some systems, such as cathodic protection, lining, or spill and overfill controls, to an existing tank system to improve the ability of an underground storage tank system to prevent the release of product.
"Wastewater treatment tank" means a tank that is designed to receive and treat an influent wastewater through physical, chemical, or biological methods.
History: 1998-2000 AACS; 2008 MR 12, Eff. June 27, 2008.

R 29.2108
Source: 1998-2000 AACS.

SUBPART B. UST SYSTEMS; DESIGN, CONSTRUCTION, INSTALLATION, AND NOTIFICATION

R 29.2109 Performance standards for new UST systems.
Rule 9. Section 280.20 is amended to read as follows:
Section 280.20. (a) Tanks. Each tank shall meet the definition of secondary containment as defined in section 280.12 and shall be properly designed and constructed. Any portion of a tank which is underground and which routinely contains product shall be protected from corrosion as follows:
(1) The tank shall be constructed of fiberglass-reinforced plastic.
(2) The tank shall be constructed of steel and be cathodically protected in the following manner:
(i) The tank shall be coated with a suitable dielectric material.
(ii) Factory-installed or field-installed cathodic protection systems shall be designed by a corrosion expert.
(iii) Impressed current systems shall be designed to allow a determination of current operating status as required in section 280.31(c).
(iv) Cathodic protection systems shall be operated and maintained in accordance with section 280.31 or according to procedures acceptable to the department.
(3) The tank shall be constructed of a steel-fiberglass-reinforced-plastic composite. The fiberglass reinforced plastic shall be a minimum of 100 mils thick.
(4) Deleted.
(5) The tank construction and corrosion protection shall be determined by the department to be designed to prevent the release or threatened release of any stored regulated substance in a manner that is at least as protective of human health and the environment as the protections specified in subdivisions(1) to (3) of this subsection.
(b) Piping. All piping in contact with the ground shall be equipped with secondary containment as defined in section 280.12. Any piping that routinely contains regulated substances and is in contact with the ground shall be properly designed, constructed, and protected from corrosion in compliance with 1 of the following provisions:
(1) The piping shall be constructed of fiberglass-reinforced plastic.
(2) The piping shall be constructed of metal and be cathodically protected in the following manner:
(i) The piping shall be coated with a suitable dielectric material.
(ii) Field-installed cathodic protection systems shall be designed by a corrosion expert.
(iii) Impressed current systems shall be designed to allow a determination of current operating status as required in section 280.31(c).
(iv) Cathodic protection systems shall be operated and maintained in accordance with the provisions of section 280.31 or procedures acceptable to the department.
(v) Metallic secondary containment underground piping systems shall have corrosion protection as specified in subdivision (2)(i) to (iv) of this subsection.
(3) Deleted.
(4) The piping construction and corrosion protection shall be determined by the department to be designed to prevent the release or threatened release of any stored regulated substance in a manner that is at least as protective of human health and the environment as the protections specified in subdivisions (1) and (2) of this subsection.
(c) The following provisions apply to spill and overfill prevention equipment:
(1) Except as provided in subdivision (2) of this subsection, to prevent spilling and overfilling associated with product transfer to the UST system, owners and operators shall use the following spill and overfill prevention equipment:
(i) Spill prevention equipment that will prevent the release of product to the environment when the transfer hose is detached from the fill pipe, for example, a spill catchment basin.

(ii) Overfill prevention equipment for tanks that have a capacity of 4,000 gallons or less shall do 1 of the following:
(A) Automatically shut off flow into the tank when the tank is not more than 95% full.
(B) Alert the transfer operator when the tank is not more than 90% full by restricting the flow into the tank or by triggering a high-level alarm. For suction pump systems, a pressure regulator valve or other suitable device shall be installed in the suction piping if the flow restrictor causes a pressure buildup in the tank when activated.
(iii) Overfill prevention equipment for tanks that have a capacity of more than 4,000 gallons shall do 1 of the following:
(A) Restrict the flow from the delivery truck into the tank 30 minutes before overfill.
(B) Sound an audible alarm 1 minute before overfill.
(C) Automatically shut off the flow into the tank not less than 30 seconds before overfill.
(2) Owners and operators are not required to use the spill and overfill prevention equipment specified in subdivision (1) of this subsection if alternative equipment is used that is determined by the department to be at least as protective of human health and the environment as the equipment specified in subdivision (1)(i) or (ii) of this subsection.
(d) All tanks and piping shall be properly designed, constructed, installed, operated, and maintained in accordance with R 29.**4** 5101 et seq. of the Michigan Administrative Code. All of the following provisions shall also apply:
(1) Except at an active UST system location installed on or before January 3, 1991, a person shall not install a UST system unless the UST system is more than the following distances from the following items:
(i) Fifty feet from a single-family drinking water well, as defined in part 127 of Act No. 368 of the Public Acts of 1978, as amended, being §333.12701 et seq. of the Michigan Compiled Laws, and rules promulgated under Act No. 368 of the Public Acts of 1978.
(ii) Seventy-five feet from a type IIb and III noncommunity public water well, as defined in Act No. 399 of the Public Acts of 1976, as amended, being §325.1001 et seq. of the Michigan Compiled Laws, and rules promulgated under Act No. 399 of the Public Acts of 1976.
(iii) Two hundred feet from a type I community and type IIa noncommunity public water well, as defined in Act No. 399 of the Public Acts of 1976, as amended, being §325.1001 et seq. of the Michigan Compiled Laws, and rules promulgated under Act No. 399 of the Public Acts of 1976, and from a public surface water intake.
(iv) Tanks may not be installed at a location where loads from adjacent structures of any kind can be transmitted to the tank. A structure or foundation of a structure shall not be erected or constructed within a minimum of 10 feet from any point on the tank surface unless footings extend to the bottom of the tank excavation.
(2) Deleted
(3) Deleted
(4) Deleted**.**
(5) If the proposed location of a UST system presents an unacceptable risk of contamination to surface water, wetlands, or an aquifer, then the department may require that the UST system be located or use secondary containment, or both, so as to eliminate or minimize the danger of potential contamination or may disapprove a proposed UST installation.
(6) Holiday testing of composite tanks shall be performed on-site before installation, and holidays shall be repaired according to the manufacturer's recommendations.
(7) A double-wall UST system or a single-wall UST system that has integral secondary containment shall be designed to provide liquid communication through the interstitial space so that any release from the primary wall or any ingress (inflow) of groundwater through the outer wall can be detected in the interstitial space. These UST systems shall be tested as follows:
(i) The tank manufacturer must be able to demonstrate to the department that the requirements of this subdivision and subdivisions (1) to (6) of this subsection are met.
(ii) At the installation site for verifying the integrity of both the inner and the outer walls of the tank, the interstitial space shall be tested by a positive pressure of not less than 3 pounds per square inch gauge (psig) for a minimum of 1 hour. The entire exterior shall be checked for leaks with a suitable bubbling leak detection solution or by negative pressure (vacuum) of not less than 13 inches of mercury for a minimum of 12 hours, or 24 hours for tanks larger than 10,000 gallons, with a vacuum decrease of not more than 5 inches of mercury. If a hydrostatic test is chosen, then the interstitial space shall be dried after the testing, unless the liquid is part of a leak detection method for the tank that is acceptable to the department. All testing shall be conducted according to the manufacturer's recommendations.
(iii) At the installation site for verifying the integrity of both the inner and the outer walls of the underground piping, the primary piping shall be tested by a positive pressure of not less than 50 psig for a minimum of 1 hour and the secondary piping shall be tested by a positive pressure of not less than 5 psig for a minimum of 1 hour. The entire exterior shall be checked for leaks with a suitable bubbling leak detection solution.
(8) Deleted**.**
(9) Deleted**.**
(10) In addition to all of the provisions in this section, new hazardous substance UST systems shall comply with the requirements of section 280.42(b).

(11) A person shall not install or replace a UST system without secondary containment, as defined in section 280.12.
(12) A person shall not install or replace a motor fuel dispenser system without UDC, as defined in section 280.12. A UDC shall only be required to be installed when piping (up to, and including, the shear and check valve) below the dispenser is repaired or replaced or the concrete island supporting the dispenser is repaired or replaced.
(e) Certification of installation. All owners and operators shall ensure that 1 or more of the following methods of certification, testing, or inspection are used to demonstrate compliance with subsection(d) of this section by providing a certification of compliance on the UST registration form in accordance with section 280.22:
(1) The installer has been certified by the tank and piping manufacturer or the tank liner has been certified by the tank lining manufacturer.
(2) The installer has been certified or licensed by the department.
(3) The installation has been inspected and certified by a registered professional engineer who has education and experience in UST system installation.
(4) The installation has been inspected and approved by the implementing agency.
(5) Deleted.
(6) The owner and operator have complied with another method for ensuring compliance with the provisions of subsection (d) of this section that is determined by the department to be at least as protective of human health and the environment as the protections specified in subsection (d) of this section.
History: 1998-2000 AACS; 2008 MR 12, Eff. June 27, 2008.

R 29.2111 Upgrading existing UST systems.
Rule 11. Section 280.21 is amended to read as follows:
Section 280.21. (a) Alternatives allowed. Except as specified in subsection (d) of this section, not later than December 22, 1998, all existing UST systems shall comply with 1 of the following requirements:
(1) New UST system performance standards under section 280.20.
(2) The upgrading requirements of subsections (b) to (e) of this section. Hazardous substance UST systems shall be upgraded to the new hazardous substance UST system requirements of section 280.20.
(3) Closure requirements under subpart G of these rules, including applicable requirements for corrective action under subpart F of these rules.
(b) Tank upgrading requirements. Steel tanks shall be upgraded to meet the provisions of section 280.20(d) and 1 of the following requirements:
(1) Interior lining. A tank may be upgraded once by internal lining if all of the following provisions are complied with:
(i) The lining is installed in accordance with the requirements of section 280.33 and within 10 years after lining and, every 5 years thereafter, the lined tank is internally inspected in accordance with paragraph (ii)(A) to (I) of this subdivision and found to be structurally sound with the lining still performing in accordance with the original design specifications.
(ii) After the tank is internally inspected and determined to be eligible for upgrading, the interior lining shall be applied in compliance with the american petroleum institute (API) recommended practice 1631 or the national leak prevention association (NLPA) standard 631 and shall be certified by the same methods specified in section 280.20(e). In addition, all of the following requirements shall be met:
(A) Personnel shall be certified by a national organization acceptable to the department or certified in nondestructive testing, level I competence, in accordance with the guidelines specified by the American society for nondestructive testing entitled "Recommended Practice No. SNT-TC-1A, Personnel Qualification and Certification in Nondestructive Testing," including being certified in administering training to, and examining and retesting, personnel for certification of tank entry, surface preparation, inspection, ultrasonic thickness gauging, manway closure, and testing.
(B) Equipment used for ultrasonic thickness gauging shall have a minimum measurement range of 0.050 inches to 2 inches and a minimum resolution of 0.002 inches.
(C) After the tank has been emptied, the internal tank surfaces shall be cleaned as required for the use of ultrasonic thickness gauging.
(D) For gauging measurement control, tank walls and heads shall be divided into sections. Measurements for tank walls shall be divided into 3-foot by 3-foot sections beginning at the fill end of the bottom of the tank and extending outward around the tank circumference and along the tank length. Any additional area of the tank wall that is less than 3 feet by 3 feet shall be measured and treated as an additional section. Measurement for tank heads shall divide the tank head into 4 equal divisions by establishing horizontal and vertical diameter lines as axes. Each division shall be divided into 3-foot by 3-foot sections beginning at the center point and extending outward on each axis line. Any additional area of the tank head that is less than 3 feet by 3 feet shall be measured and treated as an additional section.
(E) Section gauging. Thickness gauging measurements shall be taken in the center of each section of the tank wall and heads. Thickness readings of 75% or less of the original wall thickness as specified in underwriters laboratories standard 58

(UL 58) shall require further gauging as prescribed for readings or more than 75% of the original wall thickness as specified in UL 58 shall be reported as the average wall thickness for the section.
(F) Gauging section subdivisions. Sections that have a center gauge measurement of 75% or less than the original wall thickness as specified in UL 58 shall be subdivided into 9 equal subdivisions. Thickness gauging for each of the subdivisions shall be taken at the center of each subdivision. The subdivision thickness readings shall then be averaged to get the average wall thickness for the section.
(G) Thin wall target area gauging. Areas that have a thickness gauging measurements that are less than 50% of the original wall thickness as specified in UL 58 shall each receive 8 additional readings. Four of the 8 readings shall be equally spaced readings and each of the 4 readings shall be at a 1 1/2 inch radius from the initial reading. The 4 other readings shall be equally spaced readings each at a 3-inch radius from the initial reading. The average of the 8 readings shall be reported as the average reading of the thin wall target area.
(H) Perforations. Perforations shall be identified and reamed to establish a minimum of 1/8 of an inch edge wall thickness before any repairs. Eight thickness measurements shall be taken around the perforation in the same pattern as described in subparagraph (G) of this paragraph. The 8 thickness measurements shall be averaged and the average shall be reported for the subdivision closest to the perforation.
(I) Average tank wall thickness. The average tank wall thickness shall be established by averaging all of the section thicknesses reported. Thickness gauge readings shall be reported on an ultrasonic thickness gauging report form that conforms to the requirements of subparagraphs (D) to (H) of this paragraph.
(J) Thin wall. The presence of any region that has less than 1/8 of an inch of metal due to internal or external corrosion or both internal and external corrosion requires that the tank be provided with an additional layer of lining material or have a 1/8 of an inch thick steel plate which has minimum dimensions of 8 inches by 8 inches and which is rolled to the contour of the tank and welded on all seams in a continuous manner covering the thin wall area of the tank.
(K) A tank is eligible for upgrade by lining only if the average wall thickness as described in subparagraph (I) of this paragraph was found to be more than 75% of the original wall thickness required under the UL 58 standard and if all of the following requirements are met:
(a) None of the perforations shall be larger than 1 inch in diameter, except under the gauging opening, where the perforation shall be not more than 2 1/2 inches in diameter.
(b) A tank shall not have more than 4 perforations that are 1/2 inch in diameter in any 1 square foot area of the tank internal surface.
(c) A tank shall not have more than 20 perforations that are 1/2 inch in diameter in any 500 square foot area. The total number of perforations shall not be more than 2 for every year of the age of the tank.
(L) A tank is not eligible for upgrade if it does not meet the requirements of subparagraph (K) of this paragraph before any repairs. A tank that fails to meet the eligibility requirements for upgrade is required to be replaced or permanently closed in compliance with subsection (a)(3) of this section.
(M) All internally inspected tanks that meet the upgrading requirements by internal lining shall be provided with a 1/4 inch thick steel striker plate which has minimum dimensions of 8 inches by 8 inches and which is rolled to the contour of the tank and welded on all seams in a continuous manner under the fill tube.
(N) Interior tank walls shall be abrasive blasted in accordance with the steel structures painting council (SSPC) standard SP 5 entitled "White Metal Blast Cleaning" and shall not have any perforations.
(O) A suspected release meeting the requirements of section 280.50 shall be reported if there are indications of a release or if perforations are found in the tank before the addition of tank lining.
(iii) All lining materials and procedures shall be approved by the department. Each lining manufacturer shall maintain and submit a current list of qualified applicators to the department. Lining thickness shall be 100-mil dry film thickness or greater.
(iv) The owner/operator shall notify the department of all tank linings not less than 15 days before any work is performed, unless the department is notified of and approves an emergency repair. Notification of the lining shall be on a form provided by the department. Lining shall be performed by a qualified applicator.
(v) The lining company shall provide the owner with a complete report of the tank evaluation, as well as the design, installation, and operational requirements of the lining system. The report shall be signed by the lining company responsible for the lining upgrade.
(2) Cathodic protection. A tank may be upgraded by cathodic protection if the cathodic protection system meets the requirements of section 280.20(a)(2)(ii), (iii), and (iv) and all of the following provisions are complied with:
(i) The integrity of the tank is ensured using 1 of the following methods:
(A) The tank has been installed for less than 10 years and has been monitored for the past 12 months for releases using 1 of the release detection methods specified in section 280.43(d) to (h).
(B) The tank has been installed for less than 10 years and is assessed for corrosion holes by conducting 2 tightness tests that

meet the requirements of section 280.43(c). The first tightness test shall be conducted before installing the cathodic protection system. The second tightness test shall be conducted between 3 and 6 months after the first operation of the cathodic protection system.
(C) The tank is internally inspected and assessed to ensure that the tank is structurally sound and free of internal corrosion and corrosion holes before installing the cathodic protection system. All personnel involved in the internal inspection related activities shall be qualified in accordance with subdivision (1)(ii)(A) of this subsection and shall conduct the ultrasonic thickness gauging in accordance with subdivision (1)(ii)(B) to (G) of this subsection, with the average wall thickness established by averaging all the section thicknesses reported. A tank is eligible for upgrade by cathodic protection alone if the average wall thickness is not less than 75% of the original wall thickness specified in the UL 58 standard.
(D) The tank is assessed to determine its eligibility for upgrade by cathodic protection by other means determined by the department to prevent releases in a manner that is at least as protective to human health and the environment as the protections specified in paragraph (i)(A) to (C) of this subdivision.
(ii) The corrosion expert responsible for the design and the installation of the cathodic protection system shall provide the owner with a complete report of all of the results of any corrosion protection investigations, as well as the design, installation, and operational requirements of the cathodic protection system. The report shall be signed by the corrosion expert.
(iii) All internally inspected tanks that meet the upgrading requirements by cathodic protection shall be provided with a 1/4 inch thick steel striker plate which is not less than 8 inches by 8 inches and which is rolled to the contour of the tank and welded on all seams in a continuous manner under the fill tube.
(iv) The owner/operator shall notify the department of all cathodic protection upgrades not less than 15 days before any work is performed, unless the department is notified of and approves an emergency repair. Notification of cathodic protection upgrade shall be on a form provided by the department. Cathodic protection upgrade shall be performed under the direct supervision and instruction of a corrosion expert.
(v) A suspected release meeting the requirements of section 280.50 shall be reported when there are indications of a release, such as visual or olfactory presence of product in the soil, before the addition of cathodic protection.
(3) Internal lining simultaneously combined with cathodic protection. A tank may be upgraded by both internal lining and cathodic protection if all of the following provisions are complied with:
(i) Not more than 1 month is allowed between the lining and the installation of cathodic protection.
(ii) The lining is installed in accordance with the requirements of section 280.33 and subdivision (1)(ii) to (v) of this subsection.
(iii) Internal inspection requirements will be waived if the lining and the cathodic protection upgrade are done within 1 month of each other.
(iv) The cathodic protection system meets the requirements of subdivision (2) of this subsection.
(4) Other methods approved by the department.
(c) Piping upgrading requirements. Metal piping which routinely contains regulated substances and which is in contact with the ground shall be cathodically protected in accordance with the provisions of section 280.20(d) and shall meet the requirements of section 280.20(b)(2)(ii) to (v).
(1) Replacement of underground piping systems in contact with the ground shall include the installation of secondary containment as defined in section 280.12.
(2) The owner/operator shall notify the department, in writing, not less than 15 days before any underground piping upgrade or total replacement of an underground piping system, unless the department is notified of, and approves, an emergency replacement.
(d) Spill protection and overfill prevention equipment. Existing UST systems shall comply with spill protection equipment requirements not later than January 3, 1992. All existing UST systems shall comply with the new UST system overfill prevention equipment requirements specified in section 280.20(c).
History: 1998-2000 AACS; 2008 MR 12, Eff. June 27, 2008.

R 29.2113 Registration submittal requirements.
Rule 13. Section 280.22 is amended to read as follows:
Section 280.22. (a) Owners shall register the UST system under part 211 of Act No. 451 of the Public Acts of 1994, as amended, being §324.21101 et seq. of the Michigan Compiled Laws, on forms provided by the department. All UST systems shall be registered and all fees paid before any UST is removed from the ground or closed in place under subpart G of these rules, unless written approval is obtained from the department. To be considered properly registered, new owners of existing UST systems shall register the UST system with the department within 30 days of ownership on a registration for underground storage tank form. New owners of a UST system who do not intend to use the UST to contain a regulated substance and who have not placed the UST temporarily out-of-service under subpart G of these rules shall empty the UST system within 45 days from acquiring ownership of the UST system. If, however, the property has been condemned by the

state or a local unit of government, then the state or local unit of government shall empty any underground storage tanks that are located on the property, within 45 days of taking possession. All tanks shall be emptied under section 280.71(b). Also, any change in tank status or any change in the information required on the form shall be reported to the department on the registration for underground storage tank form within 30 days of the change.

(b) A notice of proposed installation of underground storage tank registration form provided by the department shall be submitted by the owner to the department 45 days before installation of the UST system. The notice of UST installation form shall include all of the following information:

(1) A plot map showing the distances of all of the following within 25 feet of the UST system:

(i) The location of buildings, public roadways, and railroad main lines.

(ii) The location of property lines and easements.

(iii) The location of existing aboveground storage tanks and the location of existing and proposed underground storage tanks, piping, and dispensers.

(iv) The location of surface water and wetlands.

(2) The location of all drinking water wells within 200 feet of the UST system.

(3) Deleted**.**

(4) Deleted**.**

(5) Deleted**.**

(6) The construction materials of the tank and piping.

(7) The dimensions and capacity of each tank.

(8) The name of the regulated substance to be stored.

(9) A diagram of the UST system.

(10) The manufacturer and part number of all components of the UST system.

(c) Upon receipt of the proposed installation registration form, the department may issue a review report within 30 days. If the review report is not issued within 30 days, then the UST system may be brought into use according to the submitted registration form and shall be in accordance with these rules. The implementing agency shall be notified not less than 7 calendar days before installation of the UST system. The implementing agency shall inspect the installation within 2 working days of the scheduled installation date, excluding Saturdays, Sundays, and holidays, and shall certify the installation if the requirements of these rules have been met. If the inspection is not made within 2 working days of the installation date, excluding Saturdays, Sundays, and holidays, then the UST system shall be covered from sight and a notarized affidavit shall be submitted by the owner to the implementing agency attesting to the fact that the installation complied with the applicable rules under section 280.20(e). The UST system shall not be brought into use until it has been registered with the department on the registration for underground storage tank form under part 211 of Act No. 451 of the Public Acts of 1994, as amended, being §324.21101 et seq. of the Michigan Compiled Laws. Upon request, all UST information submitted to the department for review shall be returned within 30 working days after the UST system has been brought into use. The information may be marked "CONFIDENTIAL - DO NOT COPY" at the time it is submitted.

(d) Any owner or operator who meets the requirements of a designated clean corporate citizen in R 336.2401 to R 336.2420 shall be entitled to an expedited review report by the department to complete the review process.

(e) An owner who is required to register a UST system under subsection (a) of this section may register several tanks using 1 registration for underground storage tank form, but an owner who owns tanks located at more than 1 place of operation shall file a separate form for each separate place of operation.

(f) For underground storage tank forms required to be submitted under subsection (a) of this section, an owner shall provide all of the applicable information for each tank registered. For each tank installed or upgraded after December 22, 1988, an owner shall also provide all of the information required in the certification of compliance section of the form.

(g) All owners and operators of new UST systems shall certify, in the registration for underground storage tank form, compliance with all of the following requirements:

(1) The installation of tanks and piping under section 280.20(e).

(2) Cathodic protection of steel tanks and piping under section 280.20(a) and (b).

(3) The financial responsibility rules under subpart H of these rules.

(4) Release detection under sections 280.41 and 280.42.

(h) An owner of a new UST system shall ensure that the installer certifies, in the registration form, that the methods used to install the tanks and piping comply with the requirements in section 280.20(d).

(i) Any person who sells a tank intended to be used as an underground storage tank shall notify the purchaser of the tank of the owner's registration obligations under subsection (a) of this section.

(j) An owner of a UST system shall display proof of valid registration on the UST system or in the owner's place of business, or both, as required by the department. The proof of registration shall be provided by the department upon receipt of proper registration and the payment of fees.

History: 1998-2000 AACS; 2008 MR 12, Eff. June 27, 2008.

SUBPART C. GENERAL OPERATING REQUIREMENTS

R 29.2115
Source: 1998-2000 AACS.

R 29.2117
Source: 1998-2000 AACS.

R 29.2119
Source: 1998-2000 AACS.

SUBPART D. RELEASE DETECTION

R 29.2121
Source: 1998-2000 AACS.

R 29.2122
Source: 1998-2000 AACS.

R 29.2123
Source: 1998-2000 AACS.

R 29.2125
Source: 1998-2000 AACS.

R 29.2126
Source: 1998-2000 AACS.

R 29.2127
Source: 1998-2000 AACS.

SUBPART E. RELEASE REPORTING, INVESTIGATION, AND CONFIRMATION

R 29.2129
Source: 1998-2000 AACS.

R 29.2131
Source: 1998-2000 AACS.

R 29.2133
Source: 1998-2000 AACS.

SUBPART F. RELEASE RESPONSE AND CORRECTIVE ACTION FOR UST SYSTEMS CONTAINING PETROLEUM OR HAZARDOUS SUBSTANCES

R 29.2135
Source: 1990 AACS.

R 29.2137
Source: 1998-2000 AACS.

R 29.2139
Source: 1998-2000 AACS.

R 29.2141
Source: 1990 AACS.

R 29.2143
Source: 1990 AACS.

R 29.2145
Source: 1990 AACS.

R 29.2147
Source: 1990 AACS.

R 29.2149
Source: 1990 AACS.

SUBPART G. OUT-OF-SERVICE UST SYSTEMS AND CLOSURE

R 29.2151
Source: 1998-2000 AACS.

R 29.2153
Source: 1998-2000 AACS.

R 29.2155
Source: 1998-2000 AACS.

R 29.2157
Source: 1998-2000 AACS.

R 29.2159
Source: 1998-2000 AACS.

SUBPART H. FINANCIAL RESPONSIBILITY

R 29.2161
Source: 1998-2000 AACS.

R 29.2163
Source: 1998-2000 AACS.

R 29.2163
Source: 1998-2000 AACS.

R 29.2163a
Source: 1998-2000 AACS.

R 29.2163b
Source: 1998-2000 AACS.

R 29.2163c
Source: 1998-2000 AACS.

R 29.2163d
Source: 1998-2000 AACS.

R 29.2163e
Source: 1998-2000 AACS.

R 29.2164
Source: 1990 AACS.

R 29.2165

Source: 1998-2000 AACS.

R 29.2166
Source: 1998-2000 AACS.

R 29.2166a
Source: 1998-2000 AACS.

R 29.2167
Source: 1998-2000 AACS.

R 29.2168
Source: 1998-2000 AACS.

R 29.2168a
Source: 1998-2000 AACS.

R 29.2168b
Source: 1998-2000 AACS.

R 29.2168c
Source: 1998-2000 AACS.

R 29.2168d
Source: 1998-2000 AACS.

R 29.2169
Source: 1998-2000 AACS.

R 29.2170
Source: 1998-2000 AACS.

R 29.2171
Source: 1998-2000 AACS.

R 29.2172
Source: 1998-2000 AACS.

R 29.2173
Source: 1998-2000 AACS.

R 29.2174
Source: 1998-2000 AACS.

DEPARTMENT OF ENVIRONMENTAL QUALITY

UNDERGROUND STORAGE TANK DIVISION

TRANSPORTATION OF FLAMMABLE AND COMBUSTIBLE LIQUIDS

R 29.2201
Source: 1983 AACS.

R 29.2203
Source: 1983 AACS.

R 29.2205
Source: 1983 AACS.

R 29.2221
Source: 1983 AACS.

R 29.2222
Source: 1983 AACS.

R 29.2224
Source: 1983 AACS.

R 29.2226
Source: 1983 AACS.

R 29.2228
Source: 1983 AACS.

R 29.2230
Source: 1983 AACS.

R 29.2232
Source: 1983 AACS.

R 29.2234
Source: 1986 AACS.

STORAGE OF FLAMMABLE AND COMBUSTIBLE LIQUIDS

R 29.2301—R 29.2430
Source: 1997 AACS.

FIRE PREVENTION

PART 1. GENERAL PROVISIONS

R 29.2501
Source: 1998-2000 AACS.

R 29.2503
Source: 1998-2000 AACS.

R 29.2505
Source: 1998-2000 AACS.

R 29.2521
Source: 1998-2000 AACS.

R 29.2523
Source: 1998-2000 AACS.

R 29.2525
Source: 1998-2000 AACS.

R 29.2527
Source: 1998-2000 AACS.

R 29.2529
Source: 1998-2000 AACS.

R 29.2531
Source: 1998-2000 AACS.

R 29.2533
Source: 1998-2000 AACS.

R 29.2535
Source: 1998-2000 AACS.

R 29.2537
Source: 1998-2000 AACS.

R 29.2539
Source: 1998-2000 AACS.

R 29.2541
Source: 1998-2000 AACS.

R 29.2543
Source: 1998-2000 AACS.

R 29.2545
Source: 1998-2000 AACS.

R 29.2547
Source: 1998-2000 AACS.

R 29.2549
Source: 1998-2000 AACS.

R 29.2551
Source: 1998-2000 AACS.

R 29.2553
Source: 1998-2000 AACS.

R 29.2555
Source: 1998-2000 AACS.

R 29.2557
Source: 1998-2000 AACS.

R 29.2559
Source: 1998-2000 AACS.

R 29.2561
Source: 1998-2000 AACS.

R 29.2563
Source: 1998-2000 AACS.

R 29.2565
Source: 1998-2000 AACS.

R 29.2567
Source: 1998-2000 AACS.

R 29.2569
Source: 1998-2000 AACS.

R 29.2571
Source: 1998-2000 AACS.

R 29.2573
Source: 1998-2000 AACS.

R 29.2575
Source: 1998-2000 AACS.

R 29.2577
Source: 1998-2000 AACS.

R 29.2579
Source: 1998-2000 AACS.

R 29.2581
Source: 1998-2000 AACS.

R 29.2583
Source: 1998-2000 AACS.

R 29.2585
Source: 1998-2000 AACS.

R 29.2587
Source: 1998-2000 AACS.

R 29.2589
Source: 1998-2000 AACS.

R 29.2591
Source: 1998-2000 AACS.

R 29.2593
Source: 1998-2000 AACS.

R 29.2595
Source: 1998-2000 AACS.

R 29.2597
Source: 1998-2000 AACS.

R 29.2599
Source: 1998-2000 AACS.

R 29.2601
Source: 1998-2000 AACS.

R 29.2603
Source: 1998-2000 AACS.

R 29.2605

Source: 1998-2000 AACS.

R 29.2607
Source: 1998-2000 AACS.

R 29.2609
Source: 1998-2000 AACS.

R 29.2611
Source: 1998-2000 AACS.

R 29.2613
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R 29.2615
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R 29.2617
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R 29.2619
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R 29.2621
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R 29.2623
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R 29.2625
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R 29.2627
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R 29.2629
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R 29.2631
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R 29.2633
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R 29.2635
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R 29.2637
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R 29.2639
Source: 1998-2000 AACS.

R 29.2641
Source: 1998-2000 AACS.

R 29.2643
Source: 1998-2000 AACS.

R 29.2645
Source: 1998-2000 AACS.

R 29.2647
Source: 1998-2000 AACS.

R 29.2649
Source: 1998-2000 AACS.

R 29.2651
Source: 1998-2000 AACS.

R 29.2653
Source: 1998-2000 AACS.

R 29.2655
Source: 1998-2000 AACS.

R 29.2657
Source: 1998-2000 AACS.

R 29.2659
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R 29.2661
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R 29.2663
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R 29.2665
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R 29.2667
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R 29.2669
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R 29.2671
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R 29.2673
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R 29.2675
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R 29.2677
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R 29.2679
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R 29.2681
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R 29.2683
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R 29.2685
Source: 1998-2000 AACS.

R 29.2687
Source: 1998-2000 AACS.

R 29.2689
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R 29.2691
Source: 1998-2000 AACS.

R 29.2693
Source: 1998-2000 AACS.

R 29.2695
Source: 1998-2000 AACS.

R 29.2697
Source: 1998-2000 AACS.

R 29.2699
Source: 1998-2000 AACS.

R 29.2701
Source: 1998-2000 AACS.

R 29.2703
Source: 1998-2000 AACS.

R 29.2705
Source: 1998-2000 AACS.

R 29.2707
Source: 1998-2000 AACS.

R 29.2709
Source: 1998-2000 AACS.

R 29.2711
Source: 1998-2000 AACS.

R 29.2713
Source: 1998-2000 AACS.

R 29.2715
Source: 1998-2000 AACS.

R 29.2717

Source: 1998-2000 AACS.

R 29.2719
Source: 1998-2000 AACS.

R 29.2721
Source: 1998-2000 AACS.

R 29.2723
Source: 1998-2000 AACS.

R 29.2725
Source: 1998-2000 AACS.

R 29.2727
Source: 1998-2000 AACS.

R 29.2729
Source: 1998-2000 AACS.

R 29.2731
Source: 1998-2000 AACS.

R 29.2733
Source: 1998-2000 AACS.

FIRE ALARM AND FIRE SUPPRESSION CERTIFICATION

R 29.2801
Source: 2003 AACS.

R 29.2802
Source: 2003 AACS.

R 29.2802a
Source: 2003 AACS.

R 29.2803
Source: 2003 AACS.

R 29.2804
Source: 2003 AACS.

R 29.2805
Source: 2003 AACS.

R 29.2806
Source: 2003 AACS.

R 29.2807
Source: 2003 AACS.

R 29.2807a
Source: 2003 AACS.

R 29.2808
Source: 2003 AACS.

R 29.2809
Source: 2003 AACS.

R 29.2810
Source: 2003 AACS.

R 29.2811
Source: 2003 AACS.

R 29.2811a
Source: 2003 AACS.

R 29.2812
Source: 2003 AACS.

R 29.2813
Source: 2003 AACS.

R 29.2814
Source: 2003 AACS.

ORGANIZATION, OPERATION, AND PROCEDURE
PART 1. GENERAL PROVISIONS

R 29.3101
Source: 1981 AACS.

R 29.3103
Source: 1981 AACS.

PART 2. ORGANIZATION AND OPERATION

R 29.3201
Source: 1981 AACS.

R 29.3203
Source: 1981 AACS.

PART 3. PROCEDURES

R 29.3301
Source: 1981 AACS.

R 29.3303
Source: 1981 AACS.

R 29.3305
Source: 1981 AACS.

R 29.3307
Source: 1981 AACS.

R 29.3309
Source: 1981 AACS.

R 29.3311
Source: 1981 AACS.

R 29.3313
Source: 1981 AACS.

R 29.3315
Source: 1981 AACS.

R 29.3317
Source: 1981 AACS.

PART 4. PUBLIC INSPECTION

R 29.3401
Source: 1981 AACS.

PART 5. APPENDICES

R 29.3501
Source: 1981 AACS.

DEPARTMENT OF ENVIRONMENTAL QUALITY

STORAGE TANK DIVISON

STORAGE AND HANDLING OF LIQUEFIED PETROLEUM GASES

R 29.3801
Source: 1998-2000 AACS.

R 29.3819
Source: 1998-2000 AACS.

AMENDMENTS TO STANDARD FOR THE STORAGE AND HANDLING OF LIQUEFIED PETROLEUM GASES

R 29.3821
Source: 1998-2000 AACS.

R 29.3824
Source: 1998-2000 AACS.

R 29.3826
Source: 1998-2000 AACS.

R 29.3828
Source: 1998-2000 AACS.

R 29.3830
Source: 1998-2000 AACS.

R 29.3832
Source: 1998-2000 AACS.

R 29.3834
Source: 1998-2000 AACS.

R 29.3836
Source: 1998-2000 AACS.

R 29.3838
Source: 1998-2000 AACS.

R 29.3840
Source: 1998-2000 AACS.

R 29.3842
Source: 1998-2000 AACS.

R 29.3844
Source: 1998-2000 AACS.

R 29.3846
Source: 1998-2000 AACS.

R 29.3848
Source: 1998-2000 AACS.

R 29.3850
Source: 1998-2000 AACS.

R 29.3852
Source: 1998-2000 AACS.

R 29.3854
Source: 1998-2000 AACS.

R 29.3856
Source: 1998-2000 AACS.

R 29.4001 Rescinded.
History: 2000 AACS; rescinded 2008 MR 12, Eff. July 7, 2008.

R 29.4002 Rescinded.
History: 2000 AACS; rescinded 2008 MR 12, Eff. July 7, 2008.

R 29.4003 Rescinded
History: 2000 AACS; rescinded 2008 MR 12, Eff. July 7, 2008.

R 29.4021 Rescinded.
History: 2000 AACS; rescinded 2008 MR 12, Eff. July 7, 2008.

R 29.4022 Rescinded.
History: 2000 AACS; rescinded 2008 MR 12, Eff. July 7, 2008.

R 29.4023 Rescinded.
History: 2000 AACS; rescinded 2008 MR 12, Eff. July 7, 2008.

R 29.4024 Rescinded.
History: 2000 AACS; rescinded 2008 MR 12, Eff. July 7, 2008.

R 29.4025 Rescinded.
History: 2000 AACS; rescinded 2008 MR 12, Eff. July 7, 2008.

R 29.4026 Rescinded.
History: 2000 AACS; rescinded 2008 MR 12, Eff. July 7, 2008.

R 29.4027 Rescinded.
History: 2000 AACS; rescinded 2008 MR 12, Eff. July 7, 2008.

R 29.4028 Rescinded.
History: 2000 AACS; rescinded 2008 MR 12, Eff. July 7, 2008.

R 29.4029 Rescinded.
History: 2000 AACS; rescinded 2008 MR 12, Eff. July 7, 2008.

R 29.4030 Rescinded.
History: 2000 AACS; rescinded 2008 MR 12, Eff. July 7, 2008.

R 29.4031 Rescinded.
History: 2000 AACS; rescinded 2008 MR 12, Eff. July 7, 2008.

R 29.4032 Rescinded.
History: 2000 AACS; rescinded 2008 MR 12, Eff. July 7, 2008.

R 29.4033 Rescinded.
History: 2000 AACS; rescinded 2008 MR 12, Eff. July 7, 2008.

R 29.4034 Rescinded.
History: 2000 AACS; rescinded 2008 MR 12, Eff. July 7, 2008.

R 29.4035 Rescinded.
History: 2000 AACS; rescinded 2008 MR 12, Eff. July 7, 2008.

STORAGE AND HANDLING OF FLAMMABLE AND COMBUSTIBLE LIQUIDS

PART 1. GENERAL PROVISIONS

R 29.4101
Source: 2003 AACS.

R 29.4102
Source: 2003 AACS.

R 29.4103
Source: 2003 AACS.

R 29.4104
Source: 2003 AACS.

R 29.4105
Source: 2003 AACS.

R 29.4106
Source: 2003 AACS.

PART 2. AMENDMENTS TO FLAMMABLE AND COMBUSTIBLE LIQUIDS CODE

R 29.4201
Source: 2003 AACS.

R 29.4202
Source: 2003 AACS.

R 29.4203
Source: 2003 AACS.

R 29.4204
Source: 2003 AACS.

R 29.4205
Source: 2003 AACS.

R 29.4206
Source: 2003 AACS.

R 29.4207
Source: 2003 AACS.

R 29.4208
Source: 2003 AACS.

R 29.4209
Source: 2003 AACS.

R 29.4210
Source: 2003 AACS.

R 29.4211
Source: 2003 AACS.

R 29.4212
Source: 2003 AACS.

R 29.4213
Source: 2003 AACS.

R 29.4214
Source: 2003 AACS.

R 29.4215
Source: 2003 AACS.

R 29.4216
Source: 2003 AACS.

R 29.4217
Source: 2003 AACS.

R 29.4218
Source: 2003 AACS.

R 29.4219
Source: 2003 AACS.

R 29.4220
Source: 2003 AACS.

R 29.4221
Source: 2003 AACS.

R 29.4222
Source: 2003 AACS.

R 29.4223
Source: 2003 AACS.

R 29.4224
Source: 2003 AACS.

R 29.4225
Source: 2003 AACS.

R 29.4226
Source: 2003 AACS.

R 29.4227
Source: 2003 AACS.

R 29.4228
Source: 2003 AACS.

R 29.4229
Source: 2003 AACS.

R 29.4230
Source: 2003 AACS.

R 29.4231
Source: 2003 AACS.

R 29.4232
Source: 2003 AACS.

R 29.4233
Source: 2003 AACS.

R 29.4234
Source: 2003 AACS.

R 29.4235
Source: 2003 AACS.

R 29.4236
Source: 2003 AACS.

R 29.4237
Source: 2003 AACS.

R 29.4238
Source: 2003 AACS.

R 29.4239
Source: 2003 AACS.

R 29.4240
Source: 2003 AACS.

R 29.4301

Source: 2003 AACS.

R 29.4302
Source: 2003 AACS.

R 29.4303
Source: 2003 AACS.

R 29.4304
Source: 2003 AACS.

R 29.4305
Source: 2003 AACS.

R 29.4306
Source: 2003 AACS.

R 29.4307
Source: 2003 AACS.

R 29.4308
Source: 2003 AACS.

R 29.4309
Source: 2003 AACS.

R 29.4310
Source: 2003 AACS.

R 29.4311
Source: 2003 AACS.

R 29.4312
Source: 2003 AACS.

R 29.4313
Source: 2003 AACS.

R 29.4314
Source: 2003 AACS.

R 29.4315
Source: 2003 AACS.

R 29.4316
Source: 2003 AACS.

R 29.4317
Source: 2003 AACS.

R 29.4318
Source: 2003 AACS.

R 29.4319
Source: 2003 AACS.

R 29.4401
Source: 2003 AACS.

R 29.4402
Source: 2003 AACS.

R 29.4403
Source: 2003 AACS.

R 29.4404
Source: 2003 AACS.

R 29.4405
Source: 2003 AACS.

R 29.4406
Source: 2003 AACS.

R 29.4501
Source: 2003 AACS.

R 29.4502
Source: 2003 AACS.

R 29.4503
Source: 2003 AACS.

R 29.4504
Source: 2003 AACS.

COMPRESSED NATURAL GAS (CNG) VEHICULAR FUEL SYSTEMS

PART 1. GENERAL PROVISIONS

R 29.4601
Source: 1995 AACS.

R 29.4602
Source: 1995 AACS.

PART 2. AMENDMENTS TO THE STANDARD FOR COMPRESSED NATURAL GAS (CNG) VEHICULAR FUEL SYSTEMS

R 29.4621
Source: 1995 AACS.

R 29.4622
Source: 1995 AACS.

R 29.4623
Source: 1995 AACS.

R 29.4624
Source: 1995 AACS.

R 29.4625
Source: 1995 AACS.

R 29.4626
Source: 1995 AACS.

R 29.4627
Source: 1995 AACS.

R 29.4628
Source: 1995 AACS.

R 29.4629
Source: 1995 AACS.

R 29.4630
Source: 1995 AACS.

R 29.4631
Source: 1995 AACS.

R 29.4632
Source: 1995 AACS.

R 29.4633
Source: 1995 AACS.

R 29.4634
Source: 1995 AACS.

R 29.4635
Source: 1995 AACS.

R 29.4636
Source: 1995 AACS.

R 29.4637
Source: 1995 AACS.

R 29.4638
Source: 1995 AACS.

R 29.4639
Source: 1995 AACS.

R 29.4640
Source: 1995 AACS.

R 29.4641
Source: 1995 AACS.

R 29.4642
Source: 1995 AACS.

R 29.4643
Source: 1995 AACS.

R 29.4644
Source: 1995 AACS.

R 29.4645
Source: 1995 AACS.

R 29.4646
Source: 1995 AACS.

R 29.4647
Source: 1995 AACS.

R 29.4648
Source: 1995 AACS.

R 29.4649
Source: 1995 AACS.

R 29.4650
Source: 1995 AACS.

R 29.4651
Source: 1995 AACS.

R 29.4652
Source: 1995 AACS.

PRODUCTION, STORAGE, AND HANDLING OF LIQUEFIED NATURAL GAS

R 29.4671
Source: 1995 AACS.

R 29.4672
Source: 1995 AACS.

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

WASTE AND HAZARDOUS MATERIALS DIVISION

STORAGE AND HANDLING OF FLAMMABLE AND COMBUSTIBLE LIQUIDS

PART 1. GENERAL PROVISIONS

R 29.5101
Source: 2003 AACS.

R 29.5102
Source: 2003 AACS.

R 29.5103
Source: 2003 AACS.

R 29.5104
Source: 2003 AACS.

R 29.5105
Source: 2003 AACS.

PART 2. AMENDMENTS TO FLAMMABLE AND COMBUSTIBLE LIQUIDS (FL/CL) CODE

R 29.5201
Source: 2003 AACS.

R 29.5202
Source: 2003 AACS.

R 29.5203
Source: 2003 AACS.

R 29.5204
Source: 2003 AACS.

R 29.5205
Source: 2003 AACS.

R 29.5206
Source: 2003 AACS.

R 29.5207
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R 29.5208
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R 29.5209
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R 29.5210
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R 29.5211
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R 29.5212
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R 29.5213
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R 29.5214
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R 29.5215
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R 29.5216
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R 29.5217
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R 29.5218
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R 29.5219
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R 29.5220
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R 29.5221
Source: 2003 AACS.

R 29.5222

Source: 2003 AACS.

R 29.5223
Source: 2003 AACS.

R 29.5224
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R 29.5225
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R 29.5226
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R 29.5227
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R 29.5228
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R 29.5229
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R 29.5230
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R 29.5231
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R 29.5232
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R 29.5233
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R 29.5234
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R 29.5235
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R 29.5236
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R 29.5237
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R 29.5238
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R 29.5239
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R 29.5240
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R 29.5241
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R 29.5242
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R 29.5243
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R 29.5244
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R 29.5245
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R 29.5246
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R 29.5247
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R 29.5248
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R 29.5249
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R 29.5250
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R 29.5251
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R 29.5252
Source: 2003 AACS.

R 29.5253
Source: 2003 AACS.

R 29.5254
Source: 2003 AACS.

R 29.5255
Source: 2003 AACS.

PART 3. AMENDMENTS TO THE CODE FOR MOTOR FUEL DISPENSING FACILITIES AND REPAIR GARAGES

R 29.5301
Source: 2003 AACS.

R 29.5302
Source: 2003 AACS.

R 29.5303
Source: 2003 AACS.

R 29.5304
Source: 2003 AACS.

R 29.5305

Source: 2003 AACS.

R 29.5306
Source: 2003 AACS.

R 29.5307
Source: 2003 AACS.

R 29.5308
Source: 2003 AACS.

R 29.5309
Source: 2003 AACS.

R 29.5310
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R 29.5311
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R 29.5312
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R 29.5313
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R 29.5314
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R 29.5315
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R 29.5316
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R 29.5317
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R 29.5318
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R 29.5319
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R 29.5320
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R 29.5321
Source: 2003 AACS.

R 29.5322
Source: 2003 AACS.

R 29.5323
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R 29.5324
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R 29.5325
Source: 2003 AACS.

R 29.5326
Source: 2003 AACS.

R 29.5327
Source: 2003 AACS.

R 29.5328
Source: 2003 AACS.

R 29.5329
Source: 2003 AACS.

R 29.5330
Source: 2003 AACS.

R 29.5331
Source: 2003 AACS.

R 29.5332
Source: 2003 AACS.

R 29.5333
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R 29.5334
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R 29.5335
Source: 2003 AACS.

R 29.5336
Source: 2003 AACS.

R 29.5337
Source: 2003 AACS.

R 29.5338
Source: 2003 AACS.

R 29.5339
Source: 2003 AACS.

R 29.5340
Source: 2003 AACS.

R 29.5341
Source: 2003 AACS.

PART 4. AMENDMENTS TO THE STANDARD FOR THE INSTALLATION OF OIL-BURNING EQUIPMENT

R 29.5401
Source: 2003 AACS.

R 29.5402
Source: 2003 AACS.

R 29.5403
Source: 2003 AACS.

R 29.5404
Source: 2003 AACS.

R 29.5405
Source: 2003 AACS.

R 29.5406
Source: 2003 AACS.

R 29.5407
Source: 2003 AACS.

R 29.5408
Source: 2003 AACS.

R 29.5409
Source: 2003 AACS.

R 29.5410
Source: 2003 AACS.

R 29.5411
Source: 2003 AACS.

R 29.5412
Source: 2003 AACS.

R 29.5413
Source: 2003 AACS.

R 29.5414
Source: 2003 AACS.

R 29.5415
Source: 2003 AACS.

R 29.5416
Source: 2003 AACS.

R 29.5417
Source: 2003 AACS.

R 29.5418
Source: 2003 AACS.

R 29.5419
Source: 2003 AACS.

PART 5. AMENDMENTS TO STANDARD FOR THE INSTALLATION AND USE OF STATIONARY COMBUSTION ENGINES AND GAS TURBINES

R 29.5501
Source: 2003 AACS.

R 29.5502
Source: 2003 AACS.

R 29.5503
Source: 2003 AACS.

R 29.5504
Source: 2003 AACS.

R 29.5505
Source: 2003 AACS.

R 29.5506
Source: 2003 AACS.

R 29.5507
Source: 2003 AACS.

R 29.5508
Source: 2003 AACS.

R 29.5509
Source: 2003 AACS.

R 29.5510
Source: 2003 AACS.

R 29.5511
Source: 2003 AACS.

R 29.5512
Source: 2003 AACS.

R 29.5513
Source: 2003 AACS.

R 29.5514
Source: 2003 AACS.

R 29.5515
Source: 2003 AACS.

R 29.5516
Source: 2003 AACS.

DEPARTMENT OF ENVIRONMENTAL QUALITY

WASTE AND HAZARDOUS MATERIALS DIVISION

STORAGE AND HANDLING OF LIQUEFIED PETROLEUM GASES

R 29.6001 Applicability.
Rule 1. These rules apply to the operation of all liquefied petroleum gas (LP-gas) systems. A person shall comply with these rules, other applicable state and federal statutes, and rules and regulations promulgated under the statutes.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6002 Storage and handling of liquefied petroleum gases; adoption of standard by reference.
Rule 2. The National Fire Protection Association's (NFPA) pamphlet entitled "NFPA 58 Liquefied Petroleum Gas Code 2004 Edition," pertaining to the storage and handling, but not transportation, of LP-gas, is adopted by reference as part of these rules. Copies of the adopted code are available for inspection and distribution either at the office of the Department of

Environmental Quality, Waste and Hazardous Materials Division, Storage Tank Unit, P.O. Box 30241, Lansing, Michigan 48909-7741, or from the National Fire Protection Association, Batterymarch Park, Quincy, Massachusetts 02269, telephone number 800-344-3555. The cost of the code, at the time of the adoption, is $41.00, plus a $7.95 handling charge, per copy.
History: 2008 MR 12, Eff. July 7, 2008.

PART 2. AMENDMENTS TO ADOPTED CODE

R 29.6036 Nonapplication of code.
Rule 36. Section 1.3.2 of the code is amended as follows:

1.3.2 Nonapplication of code. This code shall not apply to the following:

(a) Frozen ground containers and underground storage in caverns including associated piping and appurtenances used for the storage of LP-gas.
(b) Deleted.
(c) LP-gas (including refrigerated storage) at utility gas plants (see NFPA 59, *Utility LP-Gas Plant Code.*)
(d) Deleted.
(e) LP-gas used with oxygen.
(f) The portions of LP-gas systems covered by NFPA 54 (ANSI Z223.1), "*National Fuel Gas Code,*" where NFPA 54 (ANSI Z223.1) is adopted, used, or enforced.
(g) Transportation by air, including use in hot air balloons, or water under the jurisdiction of the United States Department of Transportation (DOT).
(h) Marine fire protection.
(i) Refrigeration cycle equipment and LP-gas used as a refrigerant in a closed cycle.
(j) The manufacturing requirements for recreational vehicle LP-gas systems that are addressed by NFPA 1192, "*Standard on Recreational Vehicles.*"
(k) Propane dispensers located at multiple fuel refueling stations shall comply with NFPA 30A, *Code for Motor Fuel Dispensing Facilities and Repair Garages.*
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6037 Prohibitions.
Rule 37. Sections 1.8, 1.8.1, 1.8.2, 1.8.3 of the code are added as follows:
1.8 Prohibitions. Any LP-gas storage container system or practice that is not in compliance with these rules shall be considered to be in violation of these rules.
Upon notification by the department, a person shall not deliver LP-gas to a storage container system under any circumstances that are prohibited by these rules or if a container is not in compliance with these rules. Such notification may include a verbal, written communication, or an affixed written notification on the LP-gas system.
A person shall not tamper with, remove, or disregard a written notification affixed to a storage container system.
An owner or operator shall not continue to use a storage container system that is causing a release and shall expeditiously empty, per chapter 7, the system or the component that is causing the release per applicable sections of chapter 7, until the system is repaired or replaced.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6038 Notification of installation.
Rule 38. Sections 1.9, 1.9.1, 1.9.1.1, 1.9.1.2, 1.9.1.3, 1.9.1.4, 1.9.1.5, 1.9.1.6, 1.9.2, 1.9.2.1 of the code are added as follows:
1.9 Notification of Installation.

1.9.1 An applicant shall submit an installation application to the department before beginning construction of any new installation, or additional storage capacity to an existing installation, involving any of the following:

(a) Installations where individual storage capacity exceeds 2,000 gallons (7.6 cubic meters) water capacity.
(b) Installations where the aggregate storage capacity exceeds 4,000 gallons (15.2 cubic meters) water capacity.
(c) A LP-gas container filling location.

The installation application required by section 1.9.1 of the LP-gas code shall include all of the following information:
A plot map showing all of the following:
(i) The location of all of the following:
Buildings.
Public roadways.
Railroad mainlines.
Public sidewalks.

Overhead electric power lines.
The proposed location of the container.
The location of adjacent and existing containers.
The location of existing flammable and combustible liquid (FL/CL) aboveground storage tanks (ASTs).
The location of the point of transfer in relation to all of the following:
(A) The container.
(B) Buildings.
(C) Public ways.
Outdoor places of public assembly.
Driveways.
Mainline railroad track centerlines.
FL/CL dispensers.
ASTs and underground storage tanks (USTs).
The lines of adjoining property that is or may be built upon.
Drains and utility openings.
The material of construction.
The dimension and capacity of each container.
Container appurtenances.
A piping diagram showing all of the following:
Sizes.
Valves.
Pressure relief devices.
Fittings.
The manufacturer and part number of all components on LP-gas system.
The department may accept materials and equipment if it is demonstrated to the department's satisfaction that the proposed material or equipment is of an equivalent rating or higher.
Upon acknowledged receipt of the installation application the department shall issue a plan review report within 30 days. If a plan review report is not issued within 30 days, then the applicant may construct the installation according to the submitted installation application and shall comply with these rules.
The applicant shall notify the department after the plan review is approved to schedule a preliminary inspection prior to site construction. If the preliminary inspection is not made within 2 working days then the applicant may commence construction.
An applicant shall notify the department upon completion of the installation before the installation is placed into service. The department shall inspect the installation after receiving notification and shall certify the installation if the requirements of these rules are met. If the inspection is not made within 2 working days, then the applicant may place the installation into service, or if intended to be underground, mounded, or partially underground, may cover the installation from sight. In either case, an applicant shall notify the department and shall submit a signed affidavit to the department attesting to the fact that the installation complies with the installation application submitted and the applicable rules.
1.9.1.5 Upon request, the department shall return all installation applications submitted to the department for review after the department has certified the installation or within 30 days from notification of the completion of the installation.
1.9.1.6 If the construction of the storage system is not commenced within 1 year after the date of the installation application approval, then the applicant shall resubmit an installation application in accordance with this section. An applicant shall submit the fees required under the act with the resubmitted application.
Owners and operators shall register any underground, mounded, or partially underground LP-gas storage location having a container that has an individual water capacity of more than 2,000 gallons, where 2 or more containers having an aggregate capacity of more than 4,000 gallons, or which is a container filling location. Registration shall be on a form provided by the department.
A propane gas supplier shall maintain records of the locations where underground, mounded, or partially underground LP-gas storage containers other than containers specified in section 1.9.3 of the rules were filled.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6039 Referenced publications.
Rule 39. Section 2.3.10 of the code is added as follows:
2.3.10 NACE International Publications. National association of corrosion engineers international, P.O. Box 218340, Houston, Texas 77218.
NACE RP0285, *Corrosion Control of Underground Storage Tank Systems by Cathodic Protection,* 2002 edition, $37.00.

NACE RP0169, *Control of External Corrosion of Underground or Submerged Metallic Piping Systems*, 2002 edition, $42.00.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6040 Official definitions.
Rule 40. Sections 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5 of the code are amended, and sections 3.2.3(a) and 3.2.3(b) of the code are added as follows:
3.2.1 "Approved" means acceptable to the department.
3.2.2 "Authority having jurisdiction" means the department.
3.2.3 "Code" means the storage and handling of liquefied petroleum gases.
3.2.3(a) "Department" means the department of environmental quality.
3.2.3(b) "Director" means the director of the department.
3.2.4 "Labeled" means equipment or materials to which has been attached a label, symbol, or other identifying mark of an organization that is acceptable to the department and concerned with product evaluation, that maintains periodic inspection of production of labeled equipment or materials, and by whose labeling the manufacturer indicates compliance with accepted or approved standards of construction and or performance.
3.2.5 "Listed" means equipment, materials, or services included in a list published by an organization that is acceptable to the department and concerned with evaluation of products or services, that maintains periodic inspection of production listed equipment or materials or periodic evaluation of services, and whose listing states that either the equipment, material, or service meets appropriate designated standards or has been tested and found suitable for a specified purpose.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6041 General definitions.
Rule 41. Sections 3.3.1(a), 3.3.11(a), 3.3.11(b), 3.3.16(a), 3.3.16(b), 3.3.16(c), 3.3.16(d), 3.3.47(a) and 3. 3.69(a) of the code are added as follows:
3.3.1(a) "Aggregate" means total capacity of LP-gas containers that are manifolded or grouped together and includes all LP-gas containers that are located within 50 feet (15 meters) of each other.
Exception: Cylinders waiting use, resale, or exchange when stored in accordance with chapter 8.
3.3.11(a) "Cathodic protection" means a technique to prevent the corrosion of a metal surface by making the surface the cathode of an electrochemical cell. This protection renders a metallic container or piping component negatively charged with respect to its environment. This protection shall be designed by a corrosion expert as defined by these rules.
3.3.11(b) "Cathodic protection tester" means a person who can demonstrate an understanding of the principles and measurements of all common types of cathodic protection systems applicable to metal piping and container systems and who has education and experience in soil resistivity, stray current, structure-to-soil potential, and component electrical isolation measurements of metal piping and container systems. The person shall be certified as being qualified by the national association of corrosion engineers (NACE) international.
3.3.16(a) "Container filling location" means the location where LP-gas is transferred from a fixed stationary container into cylinders or containers.
3.3.16(b) "Container system" means the container assembly and piping system.
3.3.16(c) "Corrosion expert" means a person who, by reason of thorough knowledge of the physical sciences and the principals of engineering and mathematics acquired by a professional education and related practical experience, is qualified to engage in the practice of corrosion control of container systems. The person shall be certificated as being qualified by NACE, as a senior corrosion technologist, a cathodic protection specialist, or a corrosion specialist or be a registered engineer who has certification and licensing that includes education and experience in corrosion control.
3.3.16(d) "Corrosion protection" means protecting a container system to prevent the degradation of the metal through oxidation or reactivity with its environment.
3.3.47(a) "NACE" means the national association of corrosion engineers, international.
3.3.69(a) "Temporary installation" means an installation of an LP-gas container, piping, and equipment for a definite period of time that is non-reoccurring and non-seasonal use.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6042 Notification of installations.
Rule 42. Sections 4.3, 4.3.1, and 4.3.2 of the code are amended as follows:
4.3 Notification of installations.
4.3.1 Stationary installations. Plans for stationary installations must meet the requirements of section 1.9.
4.3.2 Temporary installations. The department shall be notified of temporary, not to exceed 12 months, installations

for container sizes covered in section 1.9. All temporary installations shall meet the following:

(a) Approval by the department shall be required prior to bringing the container to the site. In reviewing a proposed installation, the condition of the container, the site where the container will be located, installation and testing procedures, and operational procedures shall be evaluated before approval.

(b) The approval shall include a definite time limit after which the container shall be removed from the site.

(c) The container shall comply with all applicable provisions of this code.

History: 2008 MR 12, Eff. July 7, 2008.

R 29.6043 Notification of installations.

Rule 43. Section 4.4 of the code is amended, and sections 4.4.1 and 4.4.2 of the code are added as follows:

Qualification of personnel.

Not later than 1 year after the date of employment, a person who transfers LP-gas, or whose primary duties fall within the scope of this code, shall complete a training program and then receive certification from the national propane association's employee training certification program that includes handling, operating, and certified testing of LP-gas. The employer shall document that the person has received certified testing training. Only an individual who has received the certified testing training specified in this code is permitted to install or service LP-gas systems and equipment.

A person who transfers LP-gas at the dispensing station shall receive training in accordance with the national propane gas association's dispenser operator's training manual. The employer shall document the person received the training.

History: 2008 MR 12, Eff. July 7, 2008.

R 29.6044 Containers.

Rule 44. Subsections 5.2.1.1(c) and 5.2.1.2(d) of the code are added and section 5.2.3.1 is amended as follows:

5.2.1.1(c) Composite cylinders shall be listed.

5.2.1.2(d) DOT 4E specification aluminum cylinders and composite cylinders involved in a fire and the cylinders show evidence of fire damage then the cylinders shall be permanently removed from service.

5.2.3.1 DOT cylinders in stationary service that are filled on site and, therefore, are not under the jurisdiction of DOT either shall be requalified in accordance with DOT requirements or shall be visually inspected within 12 years of the date of manufacture and within every 5 years thereafter, in accordance with subsections 5.2.3.1(a) through 5.2.3.1(c). Such requalification shall be completed no later than 3 years after the effective date of these rules provided, however, that if after 3 years of the effective date of these rules, any DOT stationary cylinder is found to have not been requalified, it may be requalified without penalty within 60 days of written notice of its discovery.

(a) Any cylinder that fails 1 or more of the criteria in subsection 5.2.3.1(c) shall not be refilled or continued in service until the condition is corrected.

(b) Personnel shall be trained and qualified to perform inspections. Training shall be documented in accordance with section 4.4.

(c) Visual inspection shall be performed in accordance with the following:

(i) The cylinder is checked for exposure to fire, dents, cuts, digs, gouges, and corrosion according to CGA C-6, *Standard for Visual Inspection of Steel Compress Gas Cylinders*, except that paragraph 4.2.1.1(1) of that standard (which requires tare weight verification), shall not be part of the required inspection criteria.

(ii) The cylinder protective collar (where utilized) and the foot ring are intact and are firmly attached.

(iii) The cylinder is painted or coated to retard corrosion.

(iv) The cylinder pressure relief valve indicates no visible damage, corrosion of operating components, or obstructions.

(v) There is no leakage from the cylinder or its appurtenances that is detectable without the use of instruments.

(vi) The cylinder is installed on a firm foundation and is not in contact with the soil.

(vii) A cylinder that passes the visual examination shall be marked with the month and year of the examination followed by the letter "E" (example: 10-01E, indicating requalification in October 2001 by the external inspection method).

(viii) The results of the visual inspection shall be documented and a record of the inspection shall be retained for a 5-year period.

History: 2008 MR 12, Eff. July 7, 2008.

R 29.6045 Container maximum operating working pressure.

Rule 45. Section 5.2.4.5 of the code is amended as follows:

5.2.4.5 Cylinders shall be designed and constructed for at least a 240 psig (1.6 MPag) maximum allowable working pressure.

History: 2008 MR 12, Eff. July 7, 2008.

R 29.6046 Containers with attached supports.
Rule 46. Section 5.2.7.2 of the code is amended as follows:
Any ASME container over 4,000 gallons (15.2 cubic meters) water capacity or any container at a dispensing site as defined in section 3.3.21 shall be equipped in accordance with sections 5.2.7.2(a) to 5.2.7.2(d) and table 5.7.7.3.
Steel legs or supports shall be either welded to the container by the manufacturer at the time of fabrication or attached to lugs that have been welded to the container.
The legs or supports or the lugs for the attachment of legs or supports shall be secured to the container in accordance with the code or rule under which the container was designed and built, using a minimum safety factor of 4, to withstand loading in any direction equal to twice the weight of the empty container.
The attachment of a container to either a trailer or semitrailer running gear, or the attachments to the unit can be moved by a conventional over-the-road tractor, shall comply with the DOT requirements for cargo tank service. The stress calculations for the design of the attachment shall be based on twice the weight of the empty container.
The unit shall be approved by the authority having jurisdiction.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6047 Container marking.
Rule 47. Subsection 5.2.8.1(c) of the code is added as follows:
5.2.8.1(c) Where the data plate is missing on an installation of an ASME LP-gas container over 4,000 gallons (15.2 cubic meters) water capacity, in use at a particular location. The department shall allow prior department LP-gas inspection reports/facility information sheets to be adequate proof, subject to approval by the department. Subject to approval by the department, the department shall agree to allow owners and operators to stamp, using non-sparking tools, within 12 inches (30.4 centimeters) of the center of the head, to stamp into the container all available pertinent information including: serial number, gallon water capacity, manufacturer, or a number issued by the department.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6048 LP-gas hose.
Rule 48. Sections 5.3 and 5.3.1 of the code are added as follows:
5.3 LP-gas hose.
5.3.1 The inner tube of any LP-gas hose shall be compatible with LP-gas.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6049 Pressure relief devices.
Rule 49. Section 5.7.2.3 and subsection 5.7.2.4(A) of the code are amended as follows:
5.7.2.3 DOT nonrefillable metal containers shall be equipped with a pressure relief device(s) or systems(s) that will prevent propulsion of the container when the container is exposed to fire. Composite cylinders shall not be equipped with fusible plugs.
5.7.2.4(a) The start-to-leak setting of such pressure relief valves, in relation to the maximum allowable operating pressure of the container, shall be in accordance with table 5.7.2.4(a).
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6050 Container connections and appurtenances.
Rule 50. Section 5.7.7.2, subsection 5.7.7.2(c), and section 5.7.7.4 of the code are amended as follows:
5.7.7.2 Any ASME container used for motor vehicle fueling and ASME containers over 4,000 gallons (15.2 cubic meters) water capacity shall be equipped in accordance with sections 5.7.7.2(A) to 5.7.7.2(G) and table 5.7.7.3.
5.7.7.2 (C) Liquid withdrawal openings in existing installations where the container is equipped with an internal valve or internal excess flow valve that is not fitted for remote closure and automatic shutoff using thermal (fire) actuation shall be equipped for remote and thermal closure.
5.7.7.4 ASME containers over 4,000 gallons (15.2 cubic meters) water capacity shall also be equipped with the following appurtenances:
(a) An internal spring-type, flush type full internal, or external pressure relief valve, and within 10 years of the date of installation, or within 3 years of the effective date of these rules and every 10 years thereafter, owners and operators of ASME containers shall complete a visual relief valve inspection for containers over 4,000 gallons (15.2 cubic meters) water capacity and any container filling site. These visual relief valve inspections shall include a thorough inspection including removal of stacks to remove all foreign matter from in and around the relief valve. If the valve appears to be damaged or deteriorated, then the relief valve shall be replaced or recertified. Documentation of the inspection shall be provided to the

department during required inspections.
(b) A fixed maximum liquid level gauge.
(c) A float gauge, rotary gauge, slip tube gauge, or a combination of these gauges.
(d) A pressure gauge.
(e) A temperature gauge.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6051 Container appurtenances protection.
Rule 51. Section 5.7.11.5 of the code is amended as follows:
Container inlet and outlet connections on ASME containers of more than 2,000 gallons (7.6 cubic meters) water capacity or any dispensing sites as defined in section 3.3.2.1 shall be labeled to designate whether they communicate with the vapor or liquid space.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6052 Piping (including hose), fittings, and valves.
Rule 52. Sections 5.8.1.5 and 5.8.1.6 of the code are added as follows:
All piping shall be labeled to designate whether they communicate with the vapor or liquid space.
All steel or wrought iron piping shall be painted or protected against corrosion by other means acceptable to the department.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6053 Hose, quick connectors, hose connections, and flexible connectors.
Rule 53. Section 5.8.6.1 of the code is amended as follows:
Hose, hose connections, and flexible connectors shall be fabricated of materials that are compatible with LP-gas both as liquid and vapor.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6054 Valves other than container valves.
Rule 54. Section 5.10.6 of the code is amended as follows:
Valves in polyethylene piping systems shall be manufactured from thermoplastic materials listed in ASTM D 2513 "*Standard Specification for Thermoplastic Gas Pressure Pipe, Tubing and Fittings"* that have been fabricated from materials compatible with LP-gas and comply with ASTM D 2513. Valves in polyamide piping systems shall be manufactured from polyamide material as defined in ASTM D 2513. Metallic valves in polyethylene and polyamide piping systems shall be protected to minimize corrosion in accordance with 6.14.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6055 Equipment.
Rule 55. Section 5.15.5.2 of the code is amended, and section 5.15.5.3 of the Code is added as follows:
5.15.5.2 Vapor meters of the die cast or iron cast type shall be permitted to be used at any pressure equal to or less than the maximum allowable working pressure for which they are designed and marked.
Liquid meters shall be installed so that the meter housing is not subject to excessive strain from the connecting piping. If not provided in the piping design, flexible connectors that do not exceed 36 inches (1 meter) in overall length may be used.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6056 Other container location requirements.
Rule 56. Sections 6.4.1, 6.4.5.3, 6.4.5.10, 6.4.7 of the code are amended as follows:
Where storage containers having an aggregate water capacity of more than 4,000-gallons (15.1 cubic meters) are located in heavily populated or congested areas, the siting provisions of section 6.3.1 and table 6.3.1 may be modified as indicated by the fire safety analysis review described in section 6.23.3.
The area under containers shall be graded or shall have curbs installed so that the flow or accumulation of flammable liquids with flash points below 200 degrees Fahrenheit, 93.4 degrees Celsius, is prevented.
6.4.5.10 The minimum separation between LP-gas containers and liquefied hydrogen containers shall be in accordance with R 29.7001 et seq.
Persons shall not install structures such as fire walls, fences, earth or concrete barriers, and other similar structures closer than 10 feet (3.1 meters) adjacent to, or over nonrefrigerated containers. All structures installed around containers and container filling locations shall have not less than 6 inches (15.2 centimeters) of unobstructed clearance from the surface grade or floor to the bottom of the structure. Persons may install structural supports less than 6 inches (15.2 centimeters) above grade or

floor which are designed to maintain adequate ventilation in accordance with section 10.2.2. Means of egress shall meet the requirements in section 6.16.5 of this code. Structures shall not be permitted around or over installed nonrefrigerated containers unless specifically allowed as follows:
Structures partially enclosing containers shall be permitted if designed in accordance with a sound fire protection analysis.
Structures used to prevent flammable or combustible liquid accumulation or flow shall be permitted in accordance with section 6.4.5.3.
Structures between LP-gas containers and gaseous hydrogen containers shall be permitted in accordance with section 6.4.5.9.
Structures such as fences shall be permitted in accordance with section 6.16.5.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6057 Location of transfer operations.
Rule 57. Section 6.5.1.3 of the code is deleted, and table 6.5.3 of the code is amended by adding part L, as follows:
Deleted.
Table 6.5.3 Add (L) – The minimal horizontal distance between the point of transfer and utility system openings shall be not less than 15 feet (5 meters).
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6058 Installation of containers.
Rule 58. Section 6.6.1.7 of the code is added as follows:
6.6.1.7 Guard posts or other approved means shall be provided to protect a container system subject to vehicular damage. When guard posts are installed, all of the following design shall be used:
(a) Guard posts shall be constructed of schedule 40 steel pipe not less than 4 inches (10 centimeters) in diameter and shall be filled with concrete.
(b) Guard posts shall be spaced not more than 5 feet (1.6 meters) on center.
(c) Guard posts shall be set not less than 3 feet (1 meter) deep in a concrete footing that is not less than 10 inches (25 centimeters) in diameter and not less than 40 inches (1.1 meter) below grade.
(d) Guard posts shall be not less than 4 feet (1.3 meters) in height above grade.
(e) Other means as approved by the department based on the best interests of public health, safety, and welfare and the environment.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6059 Installation of underground and mounded containers.
Rule 59. Section 6.6.6.1 of the code is amended, subsection 6.6.6.1(G) of the code is amended, subsection 6.6.6.1(M) of the code is added, and section 6.6.6.4 is added, as follows:
6.6.6.1 ASME container assemblies listed for underground installation, including interchangeable aboveground-underground container assemblies, shall be installed underground in accordance with 6.6.6.1(A) to 6.6.6.1(M).
6.6.6.1(G) Buried LP-gas containers no longer in service for more than 12 months shall be removed from the ground. If building structures exist above or in close proximity to the container such that removal would jeopardize the building structure integrity, then the owner or operator may close the container in place. To close the container in place, the container shall be emptied, cleaned, purged of all vapors, and filled with an inert solid material. Where a container is to be abandoned underground the following shall be followed:
(a) As much liquid LP-gas as practical shall be removed through the container liquid withdrawal connection.
(b) As much of the remaining LP-gas vapor as practical shall be removed through a vapor connection.
(c) The vapor shall either be recovered, burned, or vented to the atmosphere.
(d) If purged, the displaced vapor shall be either recovered, burned, or vented to the atmosphere.
6.6.6.1(M) Piping permanently removed from service shall be purged and capped, or removed from the ground.
An owner and operator shall ensure that container systems are properly designed and constructed in accordance with ASME and that any portion which is underground, mounded, or partially underground is protected from corrosion as follows:
The ASME approved container system is cathodically protected in the following manner:
The American society of mechanical engineers approved container system is coated with a suitable dielectric material.
Factory-installed or field-installed cathodic protection systems are designed by a corrosion expert in accordance with the NACE recommended practice RP0285 entitled "*Corrosion Control of Underground Storage Tank Systems by Cathodic Protection,*" or equivalent protection.
Impressed current systems are designed to allow a determination of current operating status as required in section 6.14 of this code.
Cathodic protection systems are operated and maintained in accordance with the provisions of section 6.25 of this code or

according to procedures acceptable to the department.
The container is made of nonmetallic construction such as fiberglass or a composite (steel with fiberglass).
R 29.6060 Installation of containers on roofs of buildings.
Rule 60. Section 6.6.7 of the code is deleted in its entirety.
6.6.7 Deleted.
6.6.7.1 Deleted.
6.6.7.2 Deleted.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6061 Piping system service limitations.
Rule 61. Subsection 6.8.1.1(2) of the code is amended as follows:
6.8.1.1(2) Outdoor LP-gas liquid or vapor polyamide piping systems shall have pressure limitations as defined by the maximum allowable working pressure of the piping being installed.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6062 Installation of metallic pipe, tubing, and fittings.
Rule 62. Section 6.8.3.3 and subsection 6.8.3.5(2) of the code are amended as follows:
Metallic piping shall comply with the following:
Piping used at pressures higher than the container pressure, such as on the discharge side of liquid transfer pumps, shall be designed for a maximum allowable working pressure of at least 350 psig (2.4 MPag).
Vapor LP-gas piping with operating pressures in excess of 125 psig (0.9 MPag) and liquid piping not covered by section 6.8.3.3(1) shall be designed for a maximum allowable working pressure of at least 250 psig (1.7 MPag).
Vapor LP-gas piping subject to pressures of not more than 125 psig (0.9 MPag) shall be designed for a maximum allowable working pressure of at least 125 psig (0.9 MPag).
6.8.3.5(2) Fittings and flanges shall be designed for a maximum allowable working pressure equal to or greater than the required maximum allowable working pressure of the service for which they are used.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6063 Valves in polyamide and polyethylene piping systems.
Rule 63. Section 6.8.5.3 of the code is amended as follows:
Valves shall be manufactured from thermoplastic materials fabricated from materials listed in ASTM D 2513, "*Standard Specification for Thermoplastic Gas Pressure Pipe, Tubing, and Fittings,"* that have been fabricated from materials compatible with LP-gas, or from metals protected to minimize corrosion in accordance with section 6.14.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6064 Emergency shutoff valves.
Rule 64. Section 6.10.8.1 of the code is added as follows:
Owners and operators may satisfy the requirements of sections 6.10.6 and 6.10.7 of this code by using concrete or steel bulkheads or an equivalent anchorage installed at a minimum of 10 feet (3.1 m) from each storage container. Owners and operators shall ensure that fixed piping is used between the bulkhead and each storage container, and that the piping is attached to, and passes through, the bulkhead.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6065 Corrosion protection.
Rule 65. Section 6.14.1 of the code is amended as follows:
Owners and operators shall ensure that all metallic container systems that are underground, mounded, or partially underground are protected and maintained to minimize corrosion as cited in the NACE standard RP0169 entitled *"Recommended Practice, Control of External Corrosion of Underground or Submerged Metallic Piping Systems,"* and NACE recommended practice RP0285 entitled *"Corrosion Control of Underground Storage Tank Systems by Cathodic Protection,"* or equivalent protection approved by the department. The requirements of this rule do not apply to the copper piping attached to tanks used exclusively for residential heating systems.
All corrosion protection systems shall be operated and maintained to continuously provide corrosion protection to the metal components of the portion of the ASME approved container systems that routinely contains LP-gas and that is in contact with the ground.
All container systems equipped with cathodic protection systems shall be inspected for proper operation by a qualified cathodic protection tester. The system shall be tested within 6 months of installation and at least once every 3 years

thereafter or according to another reasonable time frame established by the department.
Container systems equipped with impressed current cathodic protection systems shall be inspected by the owner every 60 days to ensure that the equipment is running properly.
If container systems are equipped with cathodic protection, then the owner or operator shall maintain records to demonstrate that the cathodic protection is in compliance with the performance standards in this section. The records shall provide both of the following:
(i) The results of the last 3 inspections required in subsection (c) of this section.
(ii) The results of testing from the last 2 inspections required in subsection (b) of this section.
Within 6 months following the repair of any cathodically protected container system, the cathodic protection system shall be tested in accordance with subsections (b) and (c) of this section to ensure that it is operating properly.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6066 Pump installation.
Rule 66. Subsection 6.15.2.3(B)(2) of the code is amended as follows:
6.15.2.3(B)(2) Operate at a pressure 50 psig (345 kPag) above the operating pressure where the maximum allowable working pressure exceeds 350 psig (2.4 MPag).
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6067 Security and protection against tampering for section 6.16 and section 6.22 systems.
Rule 67. Subsections 6.16.5.2(A) and 6.16.5.2(E) of the code are amended, and section 6.16.5.3 of the code is deleted, as follows:
6.16.5.2(A) There shall be at least 2 means of emergency egress from the enclosure located at opposite sides of the enclosure unless any of the following is met:
The fenced or otherwise enclosed area is not over 100 square feet (9 square meters).
The point of transfer is within 3 feet (1 meter) of the gate.
Containers are not filled within the enclosure.
Exception: Two means of emergency egress is not required if the fencing is not less than 50 feet from any side of the container or piping.
6.16.5.2(E) Fencing shall not be required where devices that can be locked in place are provided that prevents unauthorized operation of valves, equipment, and appurtenances. Only valves, equipment, and appurtenances that could release product need be locked.
Deleted.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6068 Additional equipment requirements for cylinders, equipment, piping, and appliances used in buildings, building roofs, and exterior balconies.
Rule 68. Subsection 6.17.2.6(1) of the code is amended as follows:
6.17.2.6(1) Hose used at pressures above 5 psig (34 kPag) shall be designed for a maximum allowable working pressure of at least 350 psig (2.4 MPag).
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6069 Cylinders on roofs or exterior balconies.
Rule 69. Section 6.17.11 of the code is deleted in its entirety as follows:
6.17.11 Deleted.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6070 Container installation requirements.
Rule 70. Subsection 6.21.3.1(B) of the code is amended as follows:
6.21.3.1(B) Cylinders installed on recreational vehicles or on other vehicles shall be constructed for at least a 240 psig (1.6 MPag) maximum allowable working pressure.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6071 Vehicle fuel dispenser and dispensing stations. General installation provisions.
Rule 71. Section 6.22.3.3 of the code is amended as follows:
A LP-gas installation shall be permitted under a weather shelter or canopy, constructed of non-combustible material, properly ventilated in accordance with this code and not more than 50% of the perimeter enclosed. A stationary storage container

shall not be located under the weather shelter or canopy except where the distance between the top of the storage container and the lowest part of the weather shelter or canopy is not less than 8 feet (2.4 meters). The top of any required vent stack shall terminate above the weather shelter or canopy.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6072 Protection of ASME containers.
Rule 72. Sections 6.23.3.1, 6.23.3.2, and 6.23.3.7 of the code are amended, and section 6.23.3.3 of the code is deleted, as follows:
Fire protection shall be provided for installations with an aggregate water capacity of more than 4,000 gallons (15.1 cubic meters).
The modes of fire protection shall be specified in a written product release prevention and fire safety analysis.
Deleted.
If in the preparation of the fire safety analysis it is determined that a hazard to adjacent structures exists that exceed the protection provided by the provisions of this code, special protection shall be provided in accordance with section 6.23.5.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6073 Spacing requirements.
Rule 73. Section 6.24.2.3 of the code is amended as follows:
No part of a mounded or an underground ASME container shall be less than 10 feet (3 m) from a building or line of adjoining property that can be built upon.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6074 Transfer personnel.
Rule 74. Section 7.2.1.4 of the code is added as follows:
A container filling location that is not open to the public does not require an attendant or supervisor. Such private locations may include a card or key-controlled dispensing device. The person performing the transfer shall be capable of performing the functions and shall assume the responsibility as prescribed in section 4.4 of this code and in accordance with section 7.4.2 of this code. Operating instructions for performing the transfer on a legible sign in the immediate vicinity of the point of transfer.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6075 Filling and evacuating containers.
Rule 75. Sections 7.2.2.1, and 7.2.2.10(2) of the code are amended, and subsections 7.2.2.5.1(a) and 7.2.2.5.1(b) of the code are added, as follows:
The transfer of LP-gas out of or into a stationary container shall only be accomplished with authorization from the stationary container owner, and the transfer shall only be conducted by qualified persons trained in proper handling and operating procedures in accordance with the provisions of Section 4.4 of these rules. The person conducting the transfer of LP-gas shall also notify the owner of the container 2 working days before the transfer.
7.2.2.5.1(a) Owners and operators shall post the following legible wording, with letters not less than 3 inches (7.5 centimeters) in height and in plain view at a container filling location.
No Smoking – No Open Flames
Owner and operators shall post the following legible wording, with letters not less than 1/4 inch (1/2 centimeters) in height:
Warning: Filling the following types of cylinders is prohibited and violators are subject to civil and criminal penalties:
(i) Cylinders not approved for LP-gas.
(ii) Cylinders more than 12 years old that have not been properly recertified.
(iii) Cylinders which are damaged, burned, or which, after visual inspection, appear unsafe.
(iv) Cylinders that are not equipped with a collar or cap to protect the valves while in transit.
7.2.2.10(2) The maximum allowable working pressure for ASME containers shall be at least in accordance with table 5.2.4.2.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6076 Arrangement and operation of transfer systems.
Rule 76. Subsections 7.2.3.2(F) and 7.2.3.2(G) of the code are added as follows:
7.2.3.2(F) Signage shall be posted stating “No Smoking Within 25 Feet” on both sides of the container.
7.2.3.2(G) Signage shall be posted stating “Flammable Gas” on both sides of the container.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6077 Purging.
Rule 77. Section 7.3.2.1 of the code is amended, and sections 7.3.2.5 and 7.3.2.5.1 of the code are added, as follows:
7.3.2.1 Venting of gas from containers for purging or for other purposes shall be accomplished in accordance with sections 7.3.2.2 to 7.3.2.5.1.
Venting of containers and burning of LP-gas in containers shall be allowed only when the activity is attended and carefully monitored so adjustments can be made if conditions change.
7.3.2.5.1 If container is to remain open after purging, all odorant shall be removed.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6078 General provisions for the volumetric method of filling containers.
Rule 78. Subsection 7.4.3.2(A) of the code is amended as follows:
7.4.3.2(A) If a fixed maximum liquid level gauge or a variable liquid level gauge without liquid volume temperature correction is used, the liquid level indicated by these gauges shall be computed based on the maximum permitted filling limit when the liquid is at 40 degrees Fahrenheit (4 degrees Celsius) for aboveground containers, 50 degrees Fahrenheit (10 degrees Celsius) for underground containers, or
-10 degrees Fahrenheit (-23 degrees Celsius) for composite cylinders.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6079 Location of storage outside of buildings.
Rule 79. Section 8.4.1.1 of the code is amended as follows:
Storage outside of buildings for cylinders awaiting use, resale, or part of a cylinder exchange point shall be located as follows:
(a) At least 10 feet (3 meters) from any doorway or opening in a building frequented by the public where occupants have at least 2 means of egress.
(b) At least 10 feet (3 meters) from any doorway or opening in a building or sections of a building that has only 1 means of egress.
(c) At least 20 feet (6.1 meters) from any automobile service station fuel dispenser.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6080 Transportation of portable containers of more than 1,000 pounds (454 kilograms) water capacity.
Rule 80. Section 9.3.3.2 of the code is amended as follows:
Portable containers shall be constructed in accordance with section 5.7 and equipped in accordance with section 5.2 for portable use and shall comply with DOT portable tank specifications for LP-gas service.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6081 Painting and marking cargo tank vehicles.
Rule 81. Section 9.4.6.1 of the code is amended as follows:
9.4.6.1 Painting of cargo tank vehicles shall comply with Title 49, Code of Federal Regulations, "*Transportation*", as adopted by reference in section 2.3.9.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6082 Buildings or structures housing LP-gas distribution facilities.
Rule 82. Sections 10.4 and 10.4.1 of the code are added as follows:
10.4 Electrical equipment.
10.4.1 All electrical equipment and wiring installed in a building or room in the scope of this chapter shall comply with sections 6.20.2.1 and 6.20.2.2.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6083 Engine fuel systems. Scope.
Rule 83. Section 11.1.2.1 of the code is amended as follows:
General purpose vehicle engines fueled by LP-gas. Vehicles complying with the federal motor vehicle safety standards covering the installation of LP-gas fuel systems on vehicles and certified by the vehicle manufacturer as meeting the standards need not comply with chapter 11 of this code except for section 11.11.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6084 Container design.

Rule 84. Sections 11.3.1.1, 11.3.1.3, 11.3.1.4, 11.3.1.5, and 11.3.1.6 of the code are amended, section 11.3.1.2 of the code is deleted, and sections 11.3.1.7, and 11.3.1.8 of the code are added, as follows:
Containers shall be designed, fabricated, tested, and marked (or stamped) in accordance with the regulations of the DOT, the ASME "*Boiler and Pressure Vessel Code*," Section VII, "Rules for the Construction of Unfired Pressure Vessels" or the API-ASME "*Code for Unfired Pressure Vessels for Petroleum Liquids and Gases,"* except for UG-125 through UG-136.
Deleted.
Containers fabricated to earlier editions of regulations, rules, or codes listed in section 5.2.1.1 and of the interstate commerce commission (ICC) "*Rules for Construction of Unfired Pressure Vessels,"* prior to April 1, 1967, shall be permitted to be used in accordance with section 1.4.
Containers that have been involved in a fire and show no distortion shall be requalified for continued service before being used or reinstalled.
Cylinders shall be requalified by a manufacturer of that type of cylinder or by a repair facility approved by DOT.
ASME or API-ASME containers shall be retested using the hydrostatic test procedure applicable at the time of the original fabrication.
All container appurtenances shall be replaced.
DOT 4E specification aluminum cylinders and composite cylinders involved in a fire, and the cylinders show evidence of fire damage, then the cylinders shall be permanently removed from service.
A cylinder with an expired requalification date shall not be refilled until it is requalified by the methods prescribed in DOT regulations.
Cylinders shall be designed and constructed for at least 240 psig (1.6 MPag) service pressure.
Cylinders shall be continued in service and transported in accordance with DOT regulations.
Engine fuel containers shall be either the permanently installed or exchangeable type.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6085 Container design pressure.
Rule 85. Section 11.3.2 of the code is amended adding sections 11.3.2.1 and 11.3.2.2 as follows:
11.3.2 Container maximum allowable working pressure.
ASME engine fuel and mobile containers shall have the following maximum allowable working pressure:
250 psig (1.7 MPag) or 312 psig (2.2 MPag) where required if constructed prior to April 1, 2001.
312 psig (2.2MPag) if constructed on or after April 1, 2001.
ASME containers installed as in enclosed spaces on vehicles and all engine fuel containers for vehicles, industrial trucks, buses (including school buses), recreational vehicles, and multipurpose passenger vehicles shall be constructed with a design pressure of at least 312 psig (2.2 MPag).
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6086 Container corrosion protection.
Rule 86. Section 11.3.7 of the code is amended as follows:
11.3.7 Container corrosion protection. Engine fuel containers constructed of steel shall be painted to minimize corrosion.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6087 General requirements for appurtenances.
Rule 87. Subsection 11.4.1.7(B) and sections 11.4.1.2, 11.4.1.9, and 11.4.1.13 of the code are amended, as follows:
11.4.1.2 Container appurtenances subject to pressures in excess of 125 psig (0.9 MPag) shall be rated for a pressure of at least 250 psig (1.7 MPag).
11.4.1.7(B) The start-to-leak setting of such pressure relief valve, with relation to the maximum allowable working pressure of the container, shall be in accordance with table 5.7.2.4(A).
Pressure relief valves shall be marked with the following:
The pressure in psig (kPag) at which the valve is set to start to leak.
The rated relieving capacity in cubic feet per minute of air at 60 degrees Fahrenheit (15.6 degrees Celsius) and 14.7 psia (101 kPa).
The manufacturer's name and catalog number.
11.4.1.13 ASME containers fabricated after January 1, 1984, for use as engine fuel containers on vehicles shall be equipped or fitted with an overfilling prevention device.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6088 Carburetion equipment.

Rule 88. Section 11.5.1 of the code is amended as follows:
Pressure. Carburetion equipment subject to pressure in excess of 125 psig (0.9 MPag) shall be designed for a pressure of 250 psig (1.7 MPag) or for the maximum allowable working pressure of the container when the design pressure of the container is greater than 250 psig (1.7MPag).
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6089 Vaporizers.
Rule 89. Sections 11.5.2.3 and 11.5.2.4 of the code are amended as follows:
11.5.2.3 Vaporizers subjected to container pressure shall have a pressure rating of 250 psig (1.7 MPag) or the maximum allowable working pressure of the container when the design pressure of the container is greater than 250 psig (1.7 MPag).
11.5.2.4 Vaporizers shall be marked with the maximum allowable working pressure of the fuel containing portion in psig (MPag). The marking shall be visible when the vaporizer is installed.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6090 Fittings.
Rule 90. Sections 11.6.2.1, 11.6.2.2, 11.6.2.3, 11.6.2.4, and 11.6.2.5 of the code are amended, section 11.6.2.6 of the code is deleted, and table 11.6.2.2 of the code is added as follows:
11.6.2.1 Fittings shall be steel, brass, copper, malleable iron, or ductile (nodular) iron.
11.6.2.2 Pipe fittings shall have a minimum pressure rating as specified in table 11.6.2.2 and shall comply with the following:
(a) Cast-iron pipe fittings shall not be used.
(b) Brazing filler material shall have a melting point that exceeds 1,000 degrees Fahrenheit (538 degrees Celsius).

Table 11.6.2.2
Service Pressure Rating of Pipe, Tubing, Fittings, and Valves

Service	Minimum Pressure
Higher than container pressure	350 psig (2.4 MPag), or the MAWP, whichever is higher, or 400 psig (2.8 MPag) water/oil/gas rating
LP-gas liquid, or vapor at operating Pressure over 125 psig (0.9 MPag) and at or below container pressure	250 psig (1.7 MPag)
LP-gas vapor at operating pressure of 125 psig (0.9 MPag) or less	125 psig (0.9 MPag)

Metal tube fittings shall have a minimum pressure rating as specified in Table 11.6.2.2.
Fittings used with liquid LP-gas or with the vapor LP-gas at operating pressures over 125 psig (0.9 MPag) shall be designed for a pressure rating of at least 250 psig (1.7 MPag) or the maximum allowable pressure rating of the container, whichever is greater.
11.6.2.5 Fittings for use with vapor LP-gas at pressures in excess of 5 psig (34.5 kPag) and not in excess of 125 psig (0.9 MPag) shall be designed for a maximum allowable working pressure of 125 psig (0.9 MPag).
11.6.2.6 Deleted.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6091 Hose, hose connections, and flexible connectors.
Rule 91. Sections 11.6.3.1, 11.6.3.5, and 11.6.3.7 of the code are amended as follows:
11.6.3.1 Hose, hose connections, and flexible hose connectors used for conveying LP-gas liquid or vapor at pressures in excess of 5 psig (34.5 kPag) shall be fabricated of materials compatible with LP-gas both as liquid and vapor and the hose and flexible hose connector shall be of reinforced construction.
Hose assemblies after the application of the connections shall be capable of withstanding a pressure of not less than 700 psig (4.8 MPag). If a test is performed, such assemblies shall be leak tested at pressures between the operating and 120% of the pressure rating.
Hose in excess of 5 psig (34.5 kPag) service pressure and quick connectors shall be listed or approved.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6092 Container design temperature and pressure.
Rule 92. Sections 12.1.2.1 and 12.1.2.2 of the code are deleted, and section 12.1.2.3 of the code is amended, as follows:

Deleted.
Deleted.
The design of the ASME containers shall include a minimum 5% increase in the absolute vapor pressure of the LP-gas at the design storage temperature. The margin (both positive and vacuum) for low-pressure API standard 620, "*Design and Construction of Large, Welded, Low-Pressure Storage Tanks,"* vessels shall include the following:
The control range of the boil-off handling system.
The effects of flash or vapor collapse during filling operations.
The flash that can result from withdrawal pump recirculation.
The normal range of barometric pressure changes.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6093 Marking on refrigerated LP-gas containers.
Rule 93. Section 12.2.1 of the code is amended as follows:
Each refrigerated LP-gas container shall be identified by the attachment of a name plate located either on the container or in a visible location.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6094 Piping.
Rule 94. Section 12.3.3.4 of the code is amended as follows:
12.3.3.4 Gaskets used to retain LP-gas in containers shall be fabricated with materials compatible with LP-gas.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6095 Refrigerated LP-gas container impoundment.
Rule 95. Section 12.5.7 of the code is deleted as follows:
Deleted.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6096 Operations and maintenance.
Rule 96. Sections 14.1.1 and 14.1.2 of the code are added as follows:
Multiple containers in vapor service only, with individual water capacity not exceeding 1,200 gallons (4.54 cubic meters) water capacity with an aggregate of 6,000 gallons (22.7 cubic meters) shall not require written operation or maintenance procedures where they are not manifolded together.
Industrial and some other installations with a capacity of 10,000 pounds (2,250 gwc) or more may be required by United States Environmental Protection Agency regulations to have an operation and maintenance manual.
History: 2008 MR 12, Eff. July 7, 2008.

R 29.6097 Small LP-gas systems (SLGS).
Rule 97. Sections 14.4.1, 14.4.2, 14.4.3, 14.4.4, 14.4.5, 14.4.6, 14.4.7, 14.4.8, 14.4.9, 14.4.10, 14.4.11, 14.4.12, and 14.4.13 of the code are added as follows:
14.4.1 Application.
A SLGS shall be a system with 99 or fewer users connected to a single supply source, except for the following:
A system with 9 or fewer users where no part of the system is located in a public place.
A system supplying 1 user where the system is located entirely on the users premises.
Each meter or regulator outlet connected to a consumer of gas shall be considered a user.
Registration.
Each SLGS shall register as follows:
The DOT pipeline and hazardous materials safety administration (PHMSA).
An installation that meets the requirements of section 1.9.
Each SLGS shall identify the entity which controls, operates, repairs, modifies, or installs the system.
14.4.3 Damage prevention. Each SLGS shall maintain a damage prevention program to minimize damage to underground portions of the system.
Each SLGS shall register and participate in a one call notification center located in the geographical area of the system location.
14.4.4 Incident reporting.
14.4.4.1 Incidents shall be reported, to the PHMSA, that involve 1 or more of the following:
The release of gas from the SLGS where death(s) occurs or personal injury resulting in-patient hospitalization occurs.

The estimated property damage, including the cost of gas or both exceeds $50,000.00
14.4.4.2 Incident reports shall contain an analysis of the cause of the accident, repairs made and other significant factors.
14.4.5 SGLS piping system service limitations. Pressure limits shall be in accordance with section 6.8.
Odorization. Each delivery to a SLGS shall be tested for the presence of odorization in accordance with section 4.2.3. The results of the tests shall be documented.
Construction records, maps and operating history. Each SLGS shall provide construction records, maps, equipment and operating history of the system and make them available to operating personnel and to the PHMSA.
Key valve maintenance. Key valves that are used to shut down the system or parts of the system, in case of emergency shall be maintained annually, and the maintenance shall be documented. Key valves include the container valves and any additional valves that can be shut off.
Leak testing.
Each SLGS shall be tested prior to startup in accordance with section 6.12.
Each lateral service line that has been disconnected from the main shall be pressure tested in accordance with section 6.12 before placing it back in service.
Response to gas leak reports and interruption of gas service. Each system shall have a written procedure for response to reports of gas leakage. All employees who respond to gas leakage calls shall be trained in the procedure.
Operator qualification and covered tasks.
Each SLGS shall have a written procedure for training operators in covered tasks, which meet the requirements of section 4.4.
Leak surveys.
SLGS leak surveys shall be performed either as necessary or at a minimum of every 5 years.
SLGS leak surveys performed using gas detection equipment shall include a subsurface survey where underground piping is a part of the system.
SLGS leak surveys shall utilize flame ionization detectors, combustible gas indicators and other means of leak detection.
Where leakage is found, equipment that gives a numerical reading shall be used to determine the seriousness and location of the leak, and shall be repaired immediately.
Consumer education. Each SLGS operator shall provide information to users and other residents in the area of a SLGS annually.
Consumer education materials must include the characteristics and propensities of LP-gas.
Consumer education materials shall be furnished to each active connected service location.
History: 2008 MR 12, Eff. July 7, 2008.

DEPARTMENT OF ENVIRONMENTAL QUALITY

WASTE AND HAZARDOUS MATERIALS DIVISION

STORAGE AND HANDLING OF GASEOUS AND LIQUEFIED HYDROGEN SYSTEMS

PART 1. GENERAL PROVISIONS

R 29.7001 Applicability.
Rule 1. These rules apply to the operation of all gaseous and Liquefied hydrogen systems. A person shall comply with these rules, other applicable state and federal statutes, and rules and regulations promulgated under the statutes.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7002 Storage and handling of gaseous and Liquefied hydrogen; adoption of standard by reference.
Rule 2. The national fire protection association's (NFPA) Pamphlet 50A, "Standard for Gaseous Hydrogen Systems at Consumer Sites," 1999 edition and NFPA Pamphlet 50B, "Standard for Liquefied Hydrogen Systems at Consumer Sites," 1999 edition, referred to in these rules as the "code," pertaining to the storage and handling, but not transportation, of gaseous and Liquefied hydrogen, are adopted by reference as part of these rules. Copies of the adopted code are available for inspection at the office of the Department of Environmental Quality, Waste and Hazardous Materials Division, Storage Tank Unit, P.O. Box 30241, Lansing, Michigan 48909-7741, or for purchase from the National Fire Protection Association, Batterymarch Park, Quincy, Massachusetts 02269, telephone number 800-344-3555. The cost of the code, at the time of the adoption, is $28.00 each, plus a $7.95 handling charge, per copy; or at the office of the Department of Environmental Quality, Waste and Hazardous Materials Division, Storage Tank Unit, P.O. Box 30241, Lansing, Michigan 48909-7741, for a cost, at the time of the adoption of these rules, of $35.95, per copy, plus $20.00 handling, plus shipping.

History: 2008 MR 8, Eff. May 1, 2008.

PART 2. STORAGE AND HANDLING OF GASEOUS HYDROGEN NFPA 50A

Chapter 1 General Information

R 29.7010 Chapter 1 General information.
Rule 10. Sections 1-1 to 1-1.2 of the storage and handling of gaseous and Liquefied hydrogen code are added as follows:
1-1 Scope. This standard covers the requirements for the design, siting, construction, installation, operation, maintenance, and dispensing from a gaseous hydrogen system.
Nothing in this hydrogen code shall be intended to prevent the use of systems, methods, or devices of equivalent or superior quality, strength, fire resistance, effectiveness, durability, environmental protection capability, or safety over those prescribed by this hydrogen code, if technical documentation is submitted to the department to demonstrate equivalency and the system, method, or device is approved for the intended purpose.
This code shall apply to the design and installation of compressed H_2 dispensing systems.
Exception: Dispensing to rail and aircraft.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7011 Classification.
Rule 11. Section 1-2 is reproduced from NFPA 50A as follows:
1-2 Classification. Systems are classified according to the total volume of hydrogen, including unconnected reserves, as follows:
(a) Less than 3500 scf (99 m^3), except as covered in 1-3.1
(b) From 3500 (99 m^3) to 15,000 scf (425 m^3)
(c) In excess of 15,000 scf (425 m^3)
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7012 Application.
Rule 12. Section 1-3.2 is reproduced from NFPA 50A, and sections 1-3, 1-3.1, 1-3.3, 1-3.4, and 1-3.5 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
1-3 Application.
1-3.1 The application of this standard at places of public assembly shall meet the requirements of section 3-2.2(a) and the approval of the department.
1-3.2 This standard shall not apply to single systems using containers having a total H_2 content of less than 400 scf (11 m^3). Where individual systems, each having a total H_2 content of less than 400 scf (11 m^3), are located less than 5 ft (1.5 m) from each other, this standard shall apply.
1-3.3 This standard does not apply to flow-through process containers.
1-3.4 When required by the department, H_2 introduced into any system covered by this code shall have a leak detection system acceptable to the department and based on the best interest of public health, safety, and welfare and the environment.
1-3.5 Gaseous H_2 in fuel tanks on vehicles and mobile equipment shall not be included in determining the maximum allowable quantities.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7013 Retroactivity.
Rule 13. Sections 1-4 and 1-4.1 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
1-4 Retroactivity.
1-4.1 The provisions of this H_2 code are necessary to provide a reasonable level of protection from loss of life and property from fire and explosion. The provisions shall reflect situations and the state of the art prevalent when the H_2 code was issued. Unless otherwise noted, it is not intended that the provisions of this H_2 code be applied to facilities, equipment, structures, or installations that were existing or approved for construction or installation before the effective date of this H_2 code, except in those cases where it is determined by the department that the existing situation involves a distinct hazard to public health, safety, adjacent property, or the environment.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7014 Definitions.
Rule 14. Section 1-5 of the storage and handling of gaseous and Liquefied H_2 code is added, and Section 1-5.1 is reproduced

from NFPA 50A as follows:
Definitions.
"ANSI" means the american national standards institute.
"Approved" means acceptable to the department.
"ASME" means the american society of mechanical engineers.
"Authority having jurisdiction" means the department.
"Automatic emergency shutoff valve" means a designated fail-safe automatic closing valve designed to shutoff the flow of gases or liquids that is initiated by a control system where the control system is activated by either manual or automatic means.
(f) "Bulk storage" means a single container or containers, where all containers draw down at the same time.
"Cargo transport container" means a mobile unit designed to transport gaseous or liquefied H_2.
"Cascade storage system" means storage in containers or cylinders arranged in banks where each bank acts as 1 large container. The banks are separated by switching valves to provide sequential drawdown of the banks. The bank may consist of 1 or more containers or cylinders.
(i) "Cathodic protection" means a technique to prevent the corrosion of a metal surface by making the surface the cathode of an electrochemical cell. This protection renders a metallic container or piping component negatively charged with respect to its environment. This protection shall be designed by a corrosion expert as defined by these rules.
(j) "Cathodic protection tester" means a person who can demonstrate an understanding of the principles and measurements of all common types of cathodic protection systems applicable to metal piping and container systems and who has education and experience in soil resistivity, stray current, structure-to-soil potential, and component electrical isolation measurements of metal piping and container systems. The person shall be certified as being qualified by the national association of corrosion engineers (NACE) international.
"Composite container" means a container fabricated of 2 or more materials that interact to facilitate the container design criteria.
(l) "Compression discharge pressure" means the varying pressure at the point of discharge from the compressor.
(m) "CGA" means the compressed gas association.
"Container" means a pressure vessel or cylinder used to store H_2.
"Container appurtenances" means devices connected to container openings for safety, control, or operating purposes.
"Container system" means a container or combination of containers and all attached appurtenances, valves, and piping.
"Container valve" means a valve connected directly to the container outlet.
(r) "Continuous gas detection system" means a gas detection system in which the instrument is maintained in continuous operation.
"Corrosion expert" means a person who, by reason of thorough knowledge of the physical sciences and the principals of engineering and mathematics acquired by a professional education and related practical experience, is qualified to engage in the practice of corrosion control of container systems. The person shall be certificated as being qualified by NACE, as a senior corrosion technologist, a cathodic protection specialist, or a corrosion specialist or be a registered engineer who has certification and licensing that includes education and experience in corrosion control.
(t) "Corrosion protection" means protecting a container system to prevent the degradation of the metal through oxidation or reactivity with its environment.
"Cylinder" means a container constructed in accordance with the United States Department of Transportation (U.S. DOT) specifications, title 49, code of federal regulations (CFR), parts 171-190.
"Department" means the department of environmental quality.
"Director" means the director of the department of environmental quality.
"Dispensing station" means an H_2 installation that dispenses H_2 from storage containers into fuel supply containers or into portable cylinders by means of a compressor, reformer, vaporizer, or pressure booster.
"Emergency shutdown device (ESD)" means a device that closes all fueling operations within the fueling facility from either local or remote locations.
"Excess flow control" means to limit or stop the flow of H_2 gas from a source of supply when there is a rupture, break, or 'open valve to atmosphere' condition that may present a hazard to personnel or the environment.
(aa) "Fail-safe" means a design feature that provides for the maintenance of safe operating conditions in the event of a malfunction of control devices or an interruption of an energy source.
(bb) "Fast fill station" means a storage and dispensing system designed to fill motor vehicle fuel tanks with compressed, gasified H_2. The vehicle fuel tank is filled by connecting to a system designed to provide a fuel fill rate above 12 scfm.
(cc) "Fixed liquid level device" means a device that indicates when the container is filled to its maximum permitted liquid filling volume.
(dd) "Flow-through process container" means a container that forms an integral part of a production process through which

there is a steady, variable, recurring, or intermittent flow of materials during the operation of the process and the container is utilized to carry out or control the heating, cooling, mixing, blending, separating, metering, or chemical reaction of materials. The processing is done on a regular basis and it is the primary function of the container. A flow-through process container does not include a container that is used for the storage of materials before its introduction into the production process or for the storage of finished products or by-products from the production process or a container that is only used to recirculate materials.

(ee) "Fuel dispenser system" means all the pumps, meters, piping, hose, and controls used for the delivery of fuel.

"Fueling connector" means a mating device at the refueling station, including shutoff valves that connect the fueling dispenser hose to the vehicle fuel filling system receptacle for the transfer of liquid or vapor.

(gg) "Gallon water capacity (wc)" means the amount of water in gallons at 60 degrees Fahrenheit (15 degrees Celsius) required to fill a container.

(hh) "Gas detection system" means a grouping of 1 or more sensors capable of detecting an H_2 leak at specified concentrations and activating alarms and safety systems.

(ii) "Gaseous H_2 system" means a system in which the H_2 is delivered, stored, and discharged in the gaseous form including the piping system. The gaseous H_2 system terminates at the point where the H_2 is dispensed.

"Hydrogen (H_2)" means the simplest and lightest element in the known universe, which exists as a gas except at low cryogenic temperatures. H_2 gas is a colorless, odorless and highly flammable gas when mixed with oxygen over a wide range of concentrations. H_2 forms water when combusted, or when otherwise joined with oxygen, as within a fuel cell.

(kk) "Hydrogen code" means the storage and handling of gaseous and liquefied H_2 rules as promulgated by the department.

(ll) "Hydrogen gas vehicle (HGV) or vehicle" means a self-propelled device on land, in, on, or by which any person or property is or may be transported or drawn upon, except for a device exclusively moved by human power, and which has the capability to use H_2 gas as an engine fuel.

"Ignition source" means any item or substance capable of an energy release of type and magnitude sufficient to ignite any flammable mixture of gases or vapors that could occur at the site.

(nn) "kPa" means absolute pressure in kilo-Pascals.

(oo) "kPag" means gauge pressure in kilo-Pascals.

"Labeled" means equipment or materials to which has been attached a label, symbol, or other identifying mark of an organization that is acceptable to the department and concerned with product evaluation, that maintains periodic inspection of production of labeled equipment or materials, and by whose labeling the manufacturer indicates compliance with accepted or approved standards of construction and or performance.

(qq) "Listed" means equipment, materials, or services included in a list published by an organization that is acceptable to the department and concerned with evaluation of products or services, that maintains periodic inspection of production listed equipment or materials or periodic evaluation of services, and whose listing states that either the equipment, material, or service meets appropriate designated standards or has been tested and found suitable for a specified purpose.

(rr) "Manifolded storage system" means storage in containers arranged in banks where each bank acts as 1 large container. The banks are separated by switching valves to provide sequential drawdown of the banks. The bank may consist of 1 or more containers.

"Manual emergency shutoff valve" means a designated valve designed to shutoff flow due to a rupture in pressurized piping system.

"Maximum allowable working pressure (MAWP)" means the maximum pressure to which any component or portion of the pressure system can be subjected.

"Maximum operating pressure (MOP)" means the steady-state gauge pressure at which a part or system normally operates.

"Metal hydride storage system" means a system for the storage of H_2 gas absorbed in solid material.

"Motor fuel dispensing facility" means that portion of the property where H_2 is stored and dispensed from fixed equipment into the fuel tanks of motor vehicles, marine craft, or into approved containers, including all equipment used in connection therewith.

(xx) "NACE" means the national association of corrosion engineers, international.

(yy) "Original equipment manufacturer (OEM)" means an original equipment motor vehicle manufacturer that certifies that the motor vehicle complies with applicable federal motor vehicle safety codes.

"Partially buried container" means a container that has part of, but less than 100%, of the container surface covered with earth.

(aaa) "Point of transfer" means the point where the transfer connection is made.

(bbb) "Portable container" means a container designed to be moved readily, as distinguished from containers designed for stationary installations. Portable containers, designed for transportation with H_2, filled to their maximum filling limit, include "cylinders," "cargo tanks," and "portable tanks," all 3 of which are defined separately. Containers designed to be readily moved from 1 usage location to another, but substantially empty of product, are "portable storage containers" and are defined

separately.
(ccc) "Portable storage container" means a container similar to those designed and constructed for stationary installation, designed so that it can be moved readily over the highways, substantially empty of H_2, from 1 usage location to another. Such containers either have legs or other supports attached, or are mounted on running gear, such as trailer or semitrailer chassis, with suitable supports that can be of the fold-down type, allowing them to be placed or parked in a stable position on a reasonably firm and level surface. For large-volume, limited-duration product usage, such as at construction sites and normally for 6 months or less, portable storage containers function in lieu of permanently installed stationary containers.
(ddd) "Portable tank, or skid tank" means a container of more than 1,000 lb (454 kilogram) water capacity used to transport H_2, handled as a package, that is, filled to its maximum permitted filling limit. Such containers are mounted on skids or runners and have all container appurtenances protected in such a manner that they can be safely handled as a package.
(eee) "Pressure relief device (PRD)" means a pressure or temperature activated device used to prevent pressure from rising above a specified value and thereby prevent the rupture of a normally charged pressure vessel or a cylinder due to emergency or abnormal conditions.
(fff) "Pressure vessel" means a container or other component designed in accordance with the ASME code.
(ggg) "psi" means pounds per square inch.
(hhh) "psia" means pounds per square inch, absolute.
(iii) "psig" means pounds per square inch gauge.
(jjj) "Rated pressure" means the pressure to which a component is rated provided that the MAWP is observed for temperature extremes.
(kkk) "Release" means an unexpected discharge of H_2.
(lll) "Remotely located manually activated shutdown control" means a control system that is designed to initiate shut down of the flow of gas or liquid that is manually activated from a point located some distance from the delivery system.
(mmm) "Residential fueling facility" means a listed vehicle fueling appliance used for the compression and delivery of H_2 into vehicles at a residence which includes its associated equipment and piping.
(nnn) "Service pressure" means the nominal gas pressure at a uniform gas temperature of 70 degrees Fahrenheit (21 degrees Celsius) when the equipment is properly and completely charged with gas; the nominal design pressure for which the equipment has been constructed.
(ooo) "Set pressure" means the start-to-discharge pressure for which a relief valve is set and marked.
(ppp) "Standard cubic foot per minute (scfm)" means the amount of gas flow in standard cubic feet per minute compensated for pressure and temperature.
(qqq) "Substantially empty" means a gas container of H_2 when the residual gas pressure is less than 10% of the maximum allowable working pressure of the vessel.
(rrr) "Vehicle-fueling appliance" means a self-contained listed assembly used for the compression and delivery of H_2 gas into vehicles including associated equipment and piping of the appliance.
1-5.1 NFPA official definitions.
Combustible Liquid. A liquid having a closed-cup flash point at or above 100° F (37.8°C) and are subdivided as follows:
(a) Class II liquids include those having a flash point at or above 100°F (37.8°C) and below 140°F (60°C).
(b) Class IIIA liquids include those having a flash point at or above 140°F (60°C) and below 200°F (93.4°C).
(c) Class IIIB liquids include those having a flash point at or above 200°F (93.4°C).
Flammable Liquid (Class I). Any liquid having a closed-cup flash point below 100°F (37.8°C) and having a vapor pressure not exceeding 40 psia (276 kPa) at 100°F (37.8°C).
Gallon. A standard U.S. gallon.
Limited-Combustible Material. A material, as defined in NFPA 220, *Standard on Types of Building Construction*, not complying with the definition of noncombustible material that, in the form in which it is used, has a potential heat value not exceeding 3500 Btu/lb (8141 kJ/kg) and complies with one of the following paragraphs (a) or (b). Materials subject to an increase in combustibility or flame spread rating, beyond the limits herein established, through the effects of age, moisture, or other atmospheric condition are considered combustible.
(a) Materials having a structural base of noncombustible material, with a surfacing not exceeding a thickness of $^1/_8$ in. (3.2 mm) that has a flame spread rating not greater than 50.
(b) Materials, in the form and thickness used, other than as described in (a), having neither a flame spread rating greater than 25 nor evidence of continued progressive combustion and of such composition that surfaces that would be exposed by cutting through the material on any plane would have neither a flame spread rating greater than 25 nor evidence of continued progressive combustion.
Noncombustible Material. A material, as defined in NFPA 220, *Standard on Types of Building Construction*, that, in the form in which it is used and under the conditions anticipated, will not ignite, burn, support combustion, or release flammable vapors when subjected to fire or heat. Materials reported as noncombustible, when tested in accordance with ASTM E 136,

Standard Method of Test for Behavior of Materials in a Vertical Tube Furnace at 750°C, are considered noncombustible materials.
Outdoors. Location outside of any building or structure or locations under a roof, weather shelter, or canopy provided this area is not enclosed on more than two sides.
Separate Building. A detached, noncommunicating building used exclusively to house a hydrogen system.
Shall. Indicates a mandatory requirement.
Special Room. A separate enclosed area that is part of or attached to another building and is used exclusively for an H_2 system.
Standard. A document, the main text of which contains only mandatory provisions using the word "shall" to indicate requirements and which is in a form generally suitable for mandatory reference by another standard or code or for adoption into law. Nonmandatory provisions shall be located in an appendix, footnote, or fine-print note and are not to be considered a part of the requirements of a standard.
Standard Cubic Foot (scf). One cubic foot of gas at 70°F (21°C) and 14.7 psia (an absolute pressure of 101 kPa).
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7015 Equivalency.
Rule 15. Sections 1-6 to 1-6.3 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
1-6 Equivalency.
1-6.1 Nothing in this H_2 code shall be intended to prevent the use of systems, methods, or devices having equivalent or superior quality, strength, fire resistance, effectiveness, durability, environmental protection capability, or safety over those prescribed by the H_2 code, if technical documentation is submitted to the department to demonstrate equivalency and the system, method, or device is approved for the intended purpose.
1-6.2 An owner or operator may make an application for a variance of rules by applying to the department with a satisfactory explanation of why compliance is not possible. The department may approve the variance request upon finding that the variance is based upon the best interest of public health, safety, and welfare and the environment.
1-6.3 A person aggrieved by a final decision of the department on a request for variance or an equivalency determination may appeal to the circuit court within 21 days of receiving the decision.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7016 Prohibitions.
Rule 16. Sections 1-7 to 1-7.4 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
1-7 Prohibitions.
Any H_2 storage container system or practice that is not in compliance with these rules shall be considered to be in violation of these rules.
Upon notification by the department, a person shall not deliver H_2 to a storage container system under any circumstances that are prohibited by these rules or if a container is not in compliance with these rules. Such notification may include a verbal or written communication or an affixed written notification on the H_2 system.
A person shall not tamper with, remove, or disregard written notification affixed to the storage container system.
An owner or operator shall not continue to use a storage container system that is causing a release and shall expeditiously empty the system or the component that is causing the release until the system is repaired or replaced.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7017 Installation application.
Rule 17. Sections 1-8 to 1-8.4 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
1-8 Installation application.
An application for plan review shall be submitted, on a form provided by the department, by the owner or owner's designee on behalf of the owner to the department not less than 30 days before the installation of an H_2 storage container system.
The installation application shall include all of the following information:
(a) A plot map showing all of the following within 100 feet (30.5 meters) of any portion from the container system:
(i) The location of the following:
Buildings.
Public roadways.
Railroad mainlines.
Public sidewalks.
Overhead power lines.
The proposed location of the dispensing station.

The location of property lines.
The locations of existing aboveground and underground tanks storing flammable and combustible liquids, and flammable, compressed or liquefied gases.
The location of the point of transfer in relationship to all of the following:
The container.
Buildings.
Public ways.
Outdoor places of public assembly.
Driveways.
Main line railroad track center lines.
The line of adjoining property that may be built upon.
Aboveground and underground tanks storing flammable and combustible liquids and/or flammable, compressed, or liquefied gases.
The construction material, the dimensions and the capacity of each container.
The type of container venting and pressure relief.
The compressor(s) size (psig and scfm).
Container appurtenances.
(f) A piping diagram showing sizes, valves, pressure relief and fittings, and control devices.

Upon acknowledged receipt of the plans, the department shall issue a plan review report within 30 days. If the plan review report is not issued within 30 days, the installation may be constructed according to the submitted plans and shall comply with these rules.

An applicant shall notify the department upon completion of the installation before the installation is placed into service. The department shall inspect the installation after receiving notification and shall certify the installation, if the requirements of the rules are met. If the inspection is not made within 2 working days, then the applicant may place the installation into service, or if intended to be underground, mounded, or partially underground, may cover the installation from sight, and shall notify the department, and shall submit a notarized affidavit to the department attesting to the fact that the installation complies with the installation application submitted and the applicable rules.

Upon the owner's request, all plans and specifications that are submitted to the department for review shall be returned after the department has certified the installation or within 30 working days after notification to the department of the completion of the installation. Plans and specifications may be marked "*Confidential—Do Not Copy*" at the time they are submitted.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7018 Installation application fees and annual certification.
Rule 18. Sections 1-9 to 1-9.2 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
1-9 Installation application fees and annual certification.

Only an owner of an H_2 container system for which an installation application is required to be submitted under section 1-8 of the H_2 code shall be required to pay fees as specified in section 5 of 1941 PA 207, MCL 29.5.

1-9.2 For the purpose of assessing fees on permanent installations, each 26,000 scf storage capacity of H_2 or increment thereof, shall be considered a container or any container filling location, as used in section 5 of 1941 PA 207, MCL 29.5.
History: 2008 MR 8, Eff. May 1, 2008.

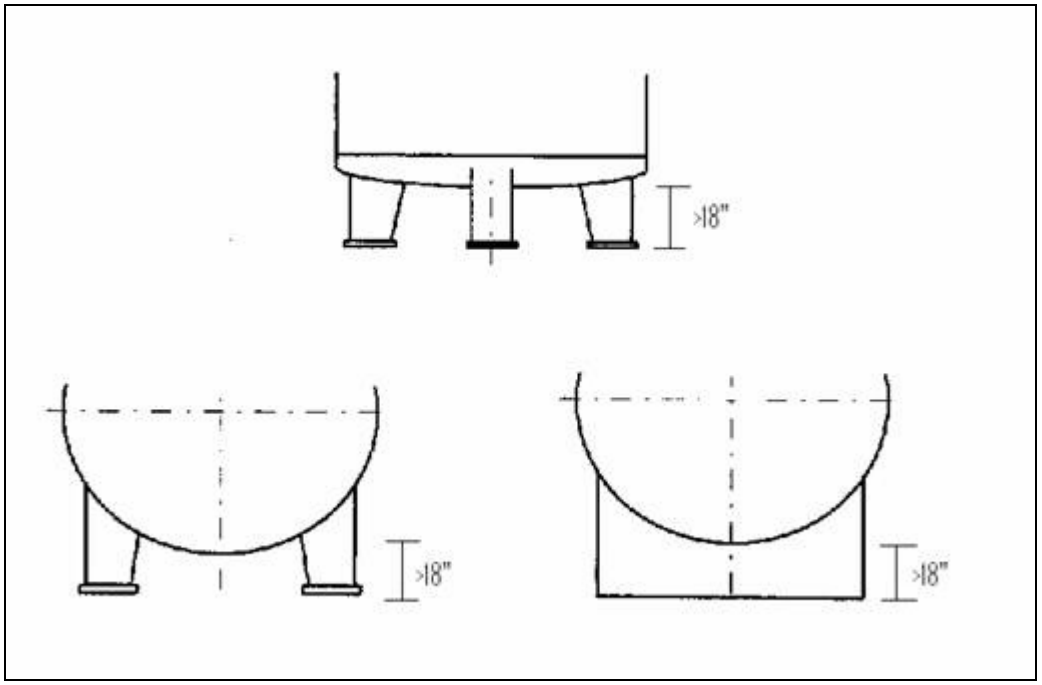
R 29.7019 Personnel.
Rule 19. Sections 1-10 to 1-10.1 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
Personnel.
In the interest of safety, all persons involved in handling H_2 shall be trained in the proper handling and operating procedures. This training shall be acceptable to the department.
Exception: This training is not required for a person dispensing H_2 *into a vehicle at an attended self-service facility.*
History: 2008 MR 8, Eff. May 1, 2008.

Chapter 2 Design of gaseous hydrogen systems

R 29.7020 Containers.
Rule 20. Section 2-1.3 is reproduced from NFPA 50A, and sections 2-1, 2-1.1, 2-1.2, and 2-1.4 to 2-1.8.2 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
2-1 Containers.
2-1.1 H_2 containers shall comply with 1 of the following:

(a) Designed, constructed, and tested in accordance with appropriate requirements of ASME International, "*Boiler and Pressure Vessel Code*," Section VIII, "Rules for the construction of pressure vessels, " adopted by reference in section 8-1.
(b) Designed, constructed, tested, and maintained in accordance with Title 49, CFR.
(c) Metal hydride storage systems shall be listed for the application and designed in a manner that prevents the removal of the metal hydride.
(d) When allowed by the department, fully over-wrapped carbon composite containers designed to a standard acceptable to the department based on the best interest of public health, safety, and the environment.
2-1.2 Permanently installed aboveground containers shall be provided with substantial supports, constructed of noncombustible material on firm foundations of noncombustible material, and shall comply with the following subsections as applicable:
(a) Steel supports in excess of 18 inches (45.72 centimeters) in height, shall have a minimum 2-hour fire resistance rating, see figure 2-1.2.
Exception: Supports may be greater than 18 inches (45.72 centimeters) *if owner demonstrates, to the satisfaction of the department, that the container will not be exposed to a 2-hour pool fire.*
(b) If a permanently installed aboveground container is in an area that is subject to buoyant forces, provision shall be made to prevent the container, either full or empty, from floating during a rise in water level, including up to the established maximum flood stage.
(c) Horizontally installed containers shall have not more than 2 points of support longitudinally or other methods approved by the department based on the best interest of public health, safety, and welfare and the environment.
(d) Horizontally installed containers shall not be in direct contact with each other.
(e) Composite containers shall be protected from UV radiation as required in the manufacturer's specifications.
(f) Aboveground containers shall be protected by painting or other equivalent means where necessary to inhibit corrosion.
Exception: Composite containers shall not be painted without prior permission from the container manufacturer.
(g) Welding or brazing for the repair or alteration of an ASME pressure vessel shall comply with the standard adopted in section 8-1.2.1.
(h) Other welding or brazing shall be permitted only on saddle plates, lugs, or brackets which are attached to the pressure vessel by the pressure vessel manufacturer.
(i) The exchange or interchange of pressure vessel appurtenances intended for the same purpose shall not be considered a repair or alteration and appurtenances must comply with these rules.

Figure 2-1.2



Each portable container shall be legibly marked with the name hydrogen in accordance with ANSI/CGA C-4, *Method of*

Marking Portable Compressed Gas Containers to Identify the Material Contained. Each manifold hydrogen supply unit shall be legibly marked with the name hydrogen or a legend such as "This unit contains hydrogen."
An owner or operator that has had a container subjected to heat exposure due to fire shall remove the container from service, unless the owner or operator provides documentation of recertification in accordance with section 2-1.1, to the department substantiating container integrity.
2-1.5 Guard posts or other approved means shall be provided to protect a container system subject to vehicular damage. When guard posts are installed, all of the following design specifications shall be met:
(a) Guard posts shall be constructed of steel not less than 4 inches (10.16 centimeters) in diameter and shall be filled with concrete.
(b) Guard posts shall be spaced not more than 4 feet (1.2 meters) on center.
(c) Guard posts shall be set not less than 4 feet (1.2 meters) deep in a concrete footing that is not less than 15 inches (38.1 centimeters) in diameter.
(d) Guard posts shall be not less than 4 feet (1.2 meters) in height above grade.
(e) Other means as approved by the department based on the best interests of public health, safety, and welfare and the environment.
2-1.6 Physical protection. Containers, piping, valves, pressure-relief devices, regulating equipment, and other appurtenances shall be protected against physical damage and tampering.
Portable containers subject to shifting or upset shall be secured. Nesting may be used to secure portable containers.
Underground containers. Underground containers for the storage of gaseous H_2 shall be in accordance with this subsection.
Construction. Storage containers for gaseous H_2 shall be designed and constructed in accordance with Section VIII of ASME International, "*Boiler and Pressure Vessel Code,"* adopted by reference in section 8-1, and shall be vacuum-jacketed in accordance with section 2-1.10.1.1.
Corrosion Protection. The underground container shall be protected by an engineered corrosion protection system designed by a corrosion expert. If cathodic protection is used the maintenance schedule shall meet the requirements of section 5-4.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7021 Pressure relief devices.
Rule 21. Section 2-2.3 is reproduced from NFPA 50A, and sections 2-2, 2-2.1, 2-2.2, and 2-2.4 to 2-2.7.1 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
2-2 Pressure relief devices.
2-2.1 H_2 containers shall be protected from credible overpressure scenarios by a relief device installed in accordance with the ASME International, "*Boiler Pressure Vessel Code*," section VIII division 1 sections UG 125 through 137, adopted by reference in section 8-1. When all credible overpressure sources are external to the container, the relief device(s) need not be installed directly on the container. In such cases, the relief devices may be installed in the piping between the container and the source(s) of overpressure and a block valve may be installed between the relief device(s) and container, provided the source of overpressure is blocked from the container.
2-2.1.1 Fully over-wrapped carbon composite containers shall be protected by thermally activated pressure relief devices acceptable to the department based on the best interests of public health, safety, welfare and the environment.
2-2.2 Pressure relief devices, when installed, shall be arranged to discharge upward and unobstructed to the open air in such a manner as to prevent any impingement of escaping gas upon the container, adjacent structures, or personnel. The vent and piping system from relief device(s) shall be designed and installed in accordance with CGA G-5.5.
2-2.3 Pressure relief devices or vent piping shall be designed or located so that moisture cannot collect and freeze in a manner that would interfere with proper operation of the device.
2-2.4 Pressure relief valves for gaseous H_2 service shall not be fitted with manual relief (lifting devices).
2-2.5 Pressure relief valves for gaseous H_2 systems, if externally adjustable, shall be provided with a means for sealing the adjustment to prevent tampering.
2-2.5.1 If at any time it is necessary to break such a seal, the valve shall be removed from service until it has been reset and sealed in accordance with design, certification, and installation code specified in section 2-2.1.
2-2.6 Pressure relief valves shall be tested at least every 5 years.
Exception: Non-ASME relief valves used for blocked-in portions of piping as thermal relief valves will not be tested.
2-2.7 Excess flow control shall be provided for pressurized H_2 piping systems above 15 psig when system design allows their application to add a significant measure of safety for break, rupture, or open valve (to atmosphere) conditions.
2-2.7.1 The location of excess flow control shall be as specified as in either of the following situations:
(a) Where piping originates from a source located in a room or area, the excess flow control shall be located within the same room or area.
(b) Where piping originates from a bulk source, the excess flow control shall be as close to the bulk source as possible.

Exception: The above requirements shall not apply to piping for inlet connections designed to prevent backflow, piping pressure relief devices, or systems containing 450 scf of H_2 *gas or less.*
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7022 Piping, tubing, and fittings.
Rule 22. Sections 2-3.1 is reproduced from NFPA 50A, and sections 2-3.1.1, 2-3.1.2, and 2-3.2 to 2-3.13 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
2-3 Piping, tubing, and fittings.
2-3.1 Piping, tubing, and fittings shall be suitable for H_2 service and for the pressures and temperatures involved. Cast-iron pipe and fittings shall not be used.
2-3.1.1 A piping system shall be substantially supported and protected against physical damage and excessive stresses arising from settlement, vibration, expansion, or contraction. Supports for aboveground piping shall be constructed of noncombustible material.
2-3.1.2 Aboveground piping systems shall be protected from corrosion in compliance with recognized standards. Underground piping systems shall be in compliance with section 5-4.
2-3.2 Material specifications and thickness requirements for piping and tubing shall conform to ASME B31.3, "*Process Piping*," adopted by reference in section 8-1.
2-3.3 Brazing materials shall have a melting point above 1,000 degrees Fahrenheit (538 degrees Celsius). Flanged connection shall use a gasket that is suitable for H_2. When making joints in piping and tubing, thread sealants, when used, shall be suitable for H_2 service and shall be applied to male pipe threads prior to assembly.
2-3.4 Aboveground piping systems shall be marked in accordance with the following:
(a) Marking shall include the name of the gas and direction of flow arrow.
(b) Marking for piping systems shall be provided at the following locations:
(i) At each critical process control valve.
(ii) At wall, floor, or ceiling penetrations.
(iii) At each change in direction.
(iv) At a minimum of every 20 feet (6.1 meters) or fraction thereof throughout the piping run.
2-3.5 Threaded or flanged connections shall not be used in areas other than outdoors.
2-3.6 Underground piping shall be installed on a bedding of at least 6 inches (15.24 centimeters) of well-compacted backfill material.
2-3.7 In areas subject to vehicle traffic, the pipe trench shall be of sufficient depth to permit a cover of not less than 18 inches (45.72 centimeters) of well compacted backfill material and pavement.
Exception 1: In paved areas where a minimum of 8 inches (20.32 centimeters) of asphalt paving is used, the depth of the backfill between the topmost tier of piping and the paving may be reduced to not less than 8 inches (20.32 centimeters).
Exception 2: In paved areas where a minimum of 6 inches (15.24 centimeters) of reinforced concrete paving is used, the depth of backfill between the topmost tier of the piping and the paving may be reduced to not less than 4 inches (10.16 centimeters).
2-3.8 In areas not subject to vehicle traffic, the pipe trench shall be of sufficient depth to permit 6 inches *(15.24 centimeters)* each of bedding and cover of well-compacted backfill material. A greater burial depth shall be provided when required by the manufacturer's instructions.
2-3.9 Piping within the same trench shall be separated by more than 3 times the diameter of the larger adjacent pipe.
2-3.10 Piping to equipment shall be provided with an accessible, manual shutoff valve.
2-3.11 Pipe, tubing, fittings, and other piping components shall be capable of withstanding a hydrostatic test of at least 3 times the rated service pressure without structural failure as documented by the manufacturer.
2-3.12 All natural gas piping shall be installed in accordance with R 29.4601 et seq.
2-3.13 All liquefied petroleum gas piping shall be installed in accordance with R 29.4001 et seq.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7023 Equipment assembly.
Rule 23. Sections 2-4 to 2-4.6 are reproduced from NFPA 50A, and sections 2-4.7 to 2-4.10 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
2-4 Equipment assembly.
2-4.1 Valves, gauges, regulators, and other accessories shall be recommended for H_2 service by the manufacturer or the H_2 supplier.
2-4.2 Installation of H_2 systems shall be supervised by personnel familiar with proper practices with reference to their construction and use.

2-4.3 Storage containers, piping, valves, regulating equipment, and other accessories shall be accessible and shall be protected against physical damage and against tampering by the general public.
2-4.4 Cabinets or housings containing H_2 control or operating equipment shall be ventilated to minimize accumulation of H_2.
2-4.5 Each mobile H_2 supply unit used as part of an H_2 system shall be secured to prevent movement.
2-4.6 Mobile H_2 supply units shall be electrically bonded to the system before discharging H_2.
2-4.7 Emergency shutoff valves shall be approved and shall incorporate all of the following means of closing:
(a) Automatic shutoff through thermal (fire) actuation. Where fusible elements are used, they shall have a melting point not exceeding 250 degrees Fahrenheit (121 degrees Celsius).
(b) Manual shutoff from a remote location.
(c) Manual shutoff at the installed location.
2-4.8 The fill line, when it is independent of the withdraw line on a storage container, shall be equipped with a backflow check valve located as close as practical to the container to prevent discharge of H_2 from the container in case of the rupture of the line, hose, or fittings.
Where excess-flow check valves are used, the closing flow shall be greater than the maximum system design flow rate and less than the flow rating of the piping system that results from a complete line failure between the excess-flow check valve and the equipment downstream of the excess-flow check valve.
2-4.10 Gas piping from an outdoor compressor or storage system into a building shall be provided with shutoff valves located outside the building. The shutoff valves shall be readily accessible and as close as practical to the building. Each valve shall be permanently identified.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7024 Marking.
Rule 24. Sections 2-5 to 2-5.4 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
2-5 Marking. Gaseous H_2 containers and systems shall be marked in accordance with this section.
2-5.1 Identification of contents. Each container shall be marked as follows:
"GASEOUS HYDROGEN - FLAMMABLE GAS"
in letters that are not less than 3 inches (76 millimeters) in height.
Container specification. Stationary containers shall be marked with the manufacturing specification and maximum allowable working pressure on a permanent nameplate in accordance with the standard to which the container was manufactured.
Portable containers. Portable containers shall be marked in accordance with CGA C-7, "*Guide to the Preparation of Precautionary Labeling and Marking of Compressed Gas Containers*," adopted by reference in section 8-1.
Stationary containers. Stationary containers shall be marked in accordance with NFPA 704, "*Standard Systems for the Identification of the Hazards of Materials for Emergency Response*," adopted by reference in section 8-1.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7025 Testing.
Rule 25. Section 2-6 is reproduced from NFPA 50A, and section 2-6.1 of the storage and handling of gaseous and Liquefied H_2 code is added as follows:
2-6 Testing. After installation, all piping, tubing, and fittings shall be tested and proved H_2 gas-tight at maximum operating pressure.
2-6.1 Containers, if out of service in excess of 1 year, shall be inspected and tested as outlined in section 2-6. The pressure relief devices shall be checked to determine if they are operable and properly set.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7026 Approval.
Rule 26. Sections 2-7 and 2-7.1 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
2-7 Approval.
Systems and all system components shall be listed or approved, including, but not limited to all of the following:
Container.
Pressure relief device, including a pressure relief valve.
Pressure gauge.
Pressure regulator.
Valve.
Hose and hose connection.
Vehicle fueling connection.
Electrical equipment related to the H_2 system.

Dispenser.
Emergency shutoff valves.
(k) Metal hydride storage.
(l) Gas detection equipment and alarms.
(m) H_2 generators.
(n) Pumps or compressor.
(o) Stationary engine fuel system.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7027 Pressure gauges.
Rule 27. Section 2-8 of the storage and handling of gaseous and Liquefied H_2 code is added as follows:
2-8 Pressure gauges. A pressure gauge, if provided, shall be capable of reading at least 1.2 times the system MAWP.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7028 Pressure regulators.
Rule 28. Sections 2-9 to 2-9.3 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
2-9 Pressure regulators.
2-9.1 A pressure regulator inlet and each chamber shall be designed for its service pressure with a safety factor of at least 3. Pressure chambers shall provide for overpressure relief, if required.
2-9.3 Regulators shall be designed, installed, or protected so that their operation is not affected by freezing rain, sleet, snow, ice, mud, insects, or debris. Regulator protection may be integral with the regulator.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7029 Valves.
Rule 29. Sections 2-10 to 2-10.2 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
Valves.
2-10.1 Shutoff valves shall have a rated service pressure not less than the rated service pressure of the entire system and shall be capable of withstanding a hydrostatic test of at least 3 times the rated service pressure without rupture.
2-10.1.1 Leakage shall not occur when tested at least 1.1 times the rated service pressure, using an inert gas compatible with industry practices.
Valves of a design that allows the valve stem to be removed without removal of the complete valve bonnet or without disassembly of the valve body shall not be used.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7030 Hose and hose connections.
Rule 30. Sections 2-11 to 2-11.6 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
Hose and hose connections.
Hose shall be constructed of or lined with materials that are resistant to corrosion and compatible with H_2.
2-11.2 Hose, metallic hose, flexible metal hose, tubing, and their connections shall be designed for the most severe pressures and temperatures expected under normal operating conditions with a burst pressure of at least 3 times the service pressure.
2-11.3 Prior to use, hose assemblies shall be tested by the manufacturer or its designated representative at a pressure at least 1.1 times the service pressure.
2-11.4 Hose and metallic hose shall be distinctly marked by the manufacturer either by the manufacturer's permanently attached tag or by distinct markings indicating the manufacturer's name or trademark, applicable service identifier and design pressure.
The use of hose in an installation shall be limited to only the following applications:
Vehicle fueling hose.
Inlet connection to compression equipment.
Section of metallic hose not exceeding 36 inches in length in the pipeline to provide flexibility where necessary.
2-11.6 Each section shall be so installed that it is protected against mechanical damage and is readily visible for inspection.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7031 Vehicle fueling connection.
Rule 31. Sections 2-12 to 2-12.2 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
2-12 Vehicle fueling connection.
2-12.1 Fueling receptacles and nozzles for gaseous H_2 service shall be listed or approved in accordance with a standard

acceptable to the department and based on the best interest of public health, safety, and welfare and the environment.
The use of adapters shall be prohibited.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7032 Temporary installations.
Rule 32. Sections 2-13 and 2-13.1 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
2-13 Temporary installations.
2-13.1 ASME or U.S. DOT containers that are used as portable storage containers, (see definition of portable container in section 1-5), for temporary, less than 6 months at any given location, stationary service shall comply with the following:
If mounted on legs or supports, then such supports shall be of steel and either shall be welded to the container by the manufacturer at the time of fabrication or shall be attached to lugs that have been so welded to the container. The legs or supports or the lugs for the attachment of these legs or supports shall be secured to the container in accordance with the code or rule under which the container was designed and built to withstand loading in any direction equal to twice the weight of the empty container and attachments.
If the container is mounted on a trailer or semi-trailer running gear so that the unit can be moved by a conventional over-the-road tractor, then attachment to the vehicle, or attachments to the container to make it a vehicle, shall comply with the appropriate U.S. DOT requirements for cargo tank service. The unit also shall comply with applicable state and U.S. DOT motor carrier regulations and shall be approved by the department.
History: 2008 MR 8, Eff. May 1, 2008.

Chapter 3 Location of gaseous hydrogen systems

R 29.7033 General requirements.
Rule 33. Sections 3-1.1, and 3-1.4 are reproduced from NFPA 50A, and sections 3-1.2, 3-1.3, and 3-1.5 to 3-1.10 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
3-1 General requirements.
3-1.1 The system shall be located so that it is accessible to delivery equipment and to authorized personnel. Roadways or other means of access for emergency equipment, such as fire department apparatus, shall be provided.
Above ground systems shall be located either at grade or above grade.
3-1.3 Aboveground systems shall not be located beneath or where exposed to failure of the following:
(a) Electric power lines as follows:
(i) Not less than 50 feet (15.24 meters) horizontally from the vertical plane below the nearest overhead wire of an electric trolley, train, or bus line.
(ii) Not less than 5 feet (1.52 meters) horizontally from the vertical plane below the nearest overhead electrical wire.
(b) Piping containing all classes of flammable or combustible liquids, see definition in Section 1-5.
(c) Piping containing oxidizing materials.
Systems within 50 feet (15.24 meters) of aboveground storage of all classes of flammable and combustible liquids shall be located on ground higher than such storage, except where dikes, diversion curbs, grading, or separating solid walls are used to prevent accumulation of these liquids under the system.
Underground systems shall be located underground, mounded, or partially buried and outside of any buildings. Buildings shall not be constructed over any underground, mounded, or partially buried container. Sides of adjacent containers shall be separated by not less than 3 feet (1 meter) unless approved by the department.
(a) Excavation for underground, mounded, or partially buried containers shall be made with due care to avoid damage to an existing structure or its foundation. Containers shall not be installed where loads from adjacent structures may be transmitted to the container. A structure or foundation of a structure on the same property shall not be erected or constructed within 10 feet (3.1 meters) of any point on the container surface, unless the footings extend to the bottom of the container. A container shall not be installed less than 10 feet (3.1 meters) from the nearest wall of any basement, pit, or property line.
All underground containers shall be set on firm foundation and surrounded with 6 inches (15.24 centimeters) minimum of noncorrosive inert material such as clean sand or pea gravel.
Underground or mounded containers shall be covered with not less than 2 feet (0.6 meter) of earth or with not less than 1 foot (30.48 centimeters) of earth on top of which shall be placed a reinforced concrete slab not less than 4 inches (10.16 centimeters) thick. If containers are likely to be subjected to traffic, they shall be protected against damage from vehicles passing over them by at least 3 feet (1 meter) of earth cover plus 6 inches (15.24 centimeters) of reinforced concrete. When reinforced concrete paving is used as part of the protection, it shall extend at least 1 foot (30.48 centimeters) horizontally beyond the outline of the container in all directions
Containers installed in an area subject to flooding, high water table, or other buoyant forces shall be safeguarded from

movement by anchoring or other means acceptable to the department based on the best interests of public health, safety, and welfare and the environment.
Aboveground gaseous H_2 systems shall be fenced and posted to prevent entrance by unauthorized personnel.
Exception: Gaseous H_2 *dispensers may be located outside the fence.*
Underground installations shall be deemed to provide engineered protection from overhead power lines.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7034 Specific requirements.
Rule 34. Sections 3-2.1, 3-2.4, 3-2.5, and table 3-2.1 are reproduced from NFPA 50A, and table 3-2.2, sections 3-2.2, 3-2.3 and 3-2.6 to 3-2.9 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
3-2 Specific requirements.
3-2.1 The location of a system, as determined by the maximum total contained volume of H_2, shall be in the order of preference as indicated by Roman numerals in table 3-2.1.

Table 3-2.1
Preferred Locations of Gaseous Hydrogen Systems

Nature of Location	Size of Hydrogen System		
	Less than 3500 scf (99 m^3)	3500 scf to 15,000 scf (99 m^3 to 425 m^3)	In Excess of 15,000 scf (425 m^3)
Outdoors	I	I	I
In a separate building	II	II	II
In a special room	III	III	Not permitted
Inside buildings not in a special room or exposed to other occupancies	IV	Not permitted	Not permitted

3-2.2 The minimum distance in feet from an H_2 system of indicated capacity located either outdoors, in separate buildings, or in special rooms to any specified outdoor exposure shall be in accordance with table 3-2.2. The distances in numbers 1, 3 to 10, and 14 inclusive in table 3-2.2 shall not apply where protective structures having a minimum fire resistance rating of 2 hours are located between the system and the exposure.
(a) An aboveground H_2 storage container system shall be erected per table 3-2.2, but not less than 50 feet (22.9 meters), from any of the following:
A school.
A church.
A hospital.
A theater.
Assembly occupancy for 50 or more persons.
Exception: The restrictions in section 3-2.2(a) shall not apply to an aboveground H_2 *system used exclusively for stationary power generation.*

Table 3-2.2
Minimum Distance from Outdoor Gaseous Hydrogen Systems to Exposures

	Total Gaseous Hydrogen Storage		
Type of Outdoor Exposure	Less than 3500 scf (99 m^3) Feet (meter)	3500 scf to 15,000 scf (99 m^3 to 425 m^3) Feet (meter)	In excess of 15,000 scf (425 m^3) Feet (meter)
1. Building or structure (a) Wall(s) adjacent to system constructed of noncombustible or limited-combustible	0[a] (0)	5[a] (1.5)	5[a] (1.5)

materials (1) Sprinklered building or structure or unsprinklered building or structure having noncombustible contents			
(2) Unsprinklered building or structure with combustible contents Adjacent wall(s) with fire resistance rating less than 2 hours[b]	0[c] (0)	10 (3.1)	25[d] (7.6)
Adjacent wall(s) with fire resistance rating of 2 hours or greater[b]	0 (0)	5 (1.5)	5 (1.5)
(b) Wall(s) adjacent to system constructed of other than noncombustible or limited-combustible materials	10 (3.1)	25 (7.6)	50[d] (15.2)
2. Wall openings (a) Not above any part of a system	10 (3.1)	10 (3.1)	10 (3.1)
(b) Above any part of a system	25 (7.6)	25 (7.6)	25 (7.6)
3. All classes of flammable and combustible liquids above ground (a) 0-1000 gal (3785L)	10 (3.1)	25 (7.6)	25 (7.6)
(b) In excess of 1000 gal (3785L)	25 (7.6)	50 (15.2)	50 (15.2)
4. All classes of flammable and combustible liquids below ground 0-100 gal (3785L)[e] (a) Tank	10 (3.1)	10 (3.1)	10 (3.1)
(b) Vent or fill opening of tank	25 (7.6)	25 (7.6)	25 (7.6)
5. All classes of flammable and combustible liquids below ground – in excess of 1000 gal (3785L)[e] (a) Tank	20 (6.1)	20 (6.1)	20 (6.1)
(b) Vent of fill opening of tank	25 (7.6)	25 (7.6)	25 (7.6)
6. Flammable gas storage (other than H_2), either high pressure or low pressure (a) 0-15,000 scf (255 m^e) capacity	10 (3.1)	25 (7.6)	25 (7.6)
(b) In excess of 15,000 scf (255 m^e) capacity	25 (7.6)	50 (15.2)	50 (15.2)
7. Oxygen storage (a) 20,000 scf (566 m^e) or less	Refer to NFPA 51, *Standard for the Design and Installation of Oxygen-Fuel Gas Systems for Welding, Cutting, and Allied Processes*		
(b) More than 20,000 scf (566 m^e)	Refer to NFPA 55, *Standard for the Storage, Use, and Handling of Compressed Gases and Cryogenic Fluids in Portable and Stationary Containers, Cylinders, and Tanks*		
8. Fast-burning solids such as ordinary lumber, excelsior, or paper	50 (15.2)	50 (15.2)	50 (15.2)
9. Slow-burning solids such as heavy timber or coal	25 (7.6)	25 (7.6)	25 (7.6)
10. Open flames and welding	25 (7.6)	25 (7.6)	25 (7.6)
11. Air compressor intakes or inlets to ventilating or air-conditioning equipment	50 (15.2)	50 (15.2)	50 (15.2)
12. Places of public assembly less than 50 people	25 (7.6)	50 (15.2)	50 (15.2)
13 Public sidewalks and parked vehicles	15 (4.6)	15 (4.6)	15 (4.6)
14 Line of adjoining property that can be built upon	5 (1.5)	5 (1.5)	5 (1.5)
15. Flammable/Combustible liquid dispenser	*10 (3.1)*	*10 (3.1)*	*10 (3.1)*
16. Public Way, driveway	*15 (4.6)*	*15 (4.6)*	*15 (4.6)*

17. Railroad	*50 (15.2)*	*50 (15.2)*	*50 (15.2)*

[a]Portions of wall less than 10 ft (3m) (measured horizontally) from any part of a system shall have a fire resistance rating of at least ½ hour.
[b]Exclusive of windows and doors (see number 2 of Table 3-2.2).
[c]Portions of walls less than 10 ft (3m) (measured horizontally) from any part of a system shall have a fire resistance rating of at least 1 hour.
[d]But not less than 1/2 the height of adjacent wall of building or structure.
[e]Distances can be reduced to 15 ft (4.5m) for Class IIIB combustible liquids.

3-2.2.1 Loose or piled combustible material and weeds and long dry grass shall not be within 10 feet (3.1 meters) of any system.

Roof top storage.

Construction of the building/roof that carries the load of the storage tank must carry a minimum 1-hour fire rating.

System must be securely mounted to roof.

System must be located to allow for inspection of the system acceptable to the department based on the best interest of public health, safety, and welfare and the environment.

3-2.3 Unloading connections on delivery equipment shall not be positioned closer to any of the exposures cited in table 3-2.2 than the distances given for the storage system.

(a) H_2 transfer between cargo transport vehicle and stationary container systems (single or multiple containers utilizing a common or manifolded transfer line), shall comply with all of the following:

(i) Owners and operators shall ensure that fixed piping is used between the container and master shutoff and check valves. The piping and manifolds shall be secured to the container frame. Flexible hoses are only permitted between the check valve and the cargo vehicle unloading connection.

(ii) Emergency shutoff valves required in this section shall be tested annually for proper operation. The results of the tests shall be documented.

(iii) All installations shall have at least 1 clearly identified and easily accessible manually operated remote emergency shutoff device. Within 1 year after the effective date of these rules, existing installations shall have at least 1 clearly identified and easily accessible manually operated remote emergency shutoff device. The emergency shutoff device shall be located not less than 20 feet (6.1 meters) nor more than 100 feet (30.5 meters) in the path of egress from the emergency shutoff valve and not less than 20 feet (6.1 meters) from the container system.

(iv) During transfer of H_2 to and from cargo vehicles, the hand or emergency brake of the vehicle shall be set, and chock blocks shall be used to prevent rolling of the vehicle.

(v) Transfer systems shall be capable of depressurizing to facilitate disconnection. Bleed connections shall lead to a safe point of discharge.

(vi) Cargo vehicle shall be equipped with air-brake interlock in front of the unloading connection to protect against drive-away.

(b) The delivery vehicle shall be located so that all parts of the vehicle are on the premises when delivery is made. Check valves shall be located as close to the container as practical.

(i) Sources of ignition shall not be permitted in the unloading area while transfer is in progress.

3-2.4 H_2 systems of less than 3500 scf (99 m^3), where located inside buildings and exposed to other occupancies, shall be situated in the building so that the system will be as follows:

(a) In an adequately ventilated area as in 4-2.2.

(b) 20 feet (6.1 meters) from all classes of flammable and combustible liquids, oxidizing gases, and readily combustible materials, such as excelsior and paper.

(c) 25 feet (7.6 meters) from open flames, ordinary electrical equipment, or other sources of ignition .

(d) 50 feet (15.24 meters) from intakes of ventilation or air-conditioning equipment and air compressors.

(e) 50 feet (15.24 meters) from other flammable gas storage.

(f) Protected against damage or injury due to falling objects or working activity in the area.

More than one system of 3500 scf (99 cubic meters) or less shall be permitted to be installed in the same room, provided the systems are separated by at least 50 feet (15.24 meters) or where a masonry structure having a minimum fire resistance rating of 2 hours is located between the systems. Each such system shall meet all of the requirements of this section.

Exception: The separation distance between multiple systems of 3500 scf (99 cubic meters) or less shall be permitted to be reduced to 25 feet (7.6 meters) in buildings where the occupancy between storage areas is free of combustible materials and protected with a sprinkler system designed for Ordinary Hazard, Group 1 occupancies or Light Hazard occupancies in accordance with NFPA 13, Standard for the Installation of Sprinkler Systems.

3-2.6 An owner and operator shall ensure that a container system, which is underground, mounded, or partially underground,

is protected from corrosion by 1 of the following:
(a) The approved container system is cathodically protected by all the following requirements:
(i) The approved container system is coated with a suitable dielectric material approved by the department.
(ii) Factory-installed or field installed cathodic protection systems are designed by a corrosion expert or in accordance with the NACE recommended practice RP0285 entitled "*Corrosion Control of Underground Storage Tank Systems by Cathodic Protection*," or impressed current systems are designed to allow a determination of current operating status as required in section 5.4-1 of the H_2 code.
(iii) Cathodic protection systems are operated and maintained in accordance with the provisions of section 5.4-1 of the H_2 code.
(b) The container is made of nonmetallic construction or corrosion-resistant, such as fiberglass or a composite.
(c) Or other means acceptable to the department and based on the best interest of public health, safety, and welfare and the environment.
3-2.7 Out-of-service aboveground containers.
Containers that are no longer in service for a period of 12 months shall be closed. To close the aboveground container, the owner or operator shall empty the container, purge it with an inert gas and safeguard it against tampering. Piping that is removed from service shall be purged with nitrogen and capped or removed.
3-2.7.2 Each container that is to be reused at the original location or a new location shall be purged with an inert gas and be in compliance with all the requirements for the installation of a new container, and shall be recertified by the manufacturer or authorized representative, and tested in accordance with the container's design specifications or be pressure tested with an inert gas or H_2 at 1.1 times the MAWP for not less than 10 minutes. Piping that is to be reused shall comply with all the requirements for the installation of new piping and shall be tested in compliance with section 3-2.9 of this code prior to being brought back into service.
3-2.8 Out-of-service underground, mounded, and partially buried containers.
3-2.8.1 Containers that are no longer used to store H_2 and are not intended to be brought back into service shall be permanently closed. To permanently close the container, the container shall be emptied and purged with an inert gas to render the container free of H_2, and then the container shall be removed from the ground. When a structure above or near the container prevents removal, the container shall be emptied and purged with an inert gas to render the container free of H_2, then the container shall be filled with an inert solid material. Piping that is permanently removed from service shall be purged with an inert gas and capped or removed.
3-2.8.2 Containers may be rendered temporarily out-of-service only when it is intended they be brought back into service at a later date. To temporarily close a container, all of the following requirements shall be met:
(a) The container shall be emptied and purged with an inert gas.
(b) Corrosion protection for the container and all underground piping shall be maintained in compliance with section 5-4.1 of this code.
(c) The vent line shall remain functional.
(d) The container shall be secured against tampering.
(e) Piping that is temporarily removed from service shall be purged with an inert gas and capped.
3-2.8.2.1 Each container that is temporarily out of service for greater than 12 months shall be pressure tested with an inert gas at 1.1 times the MAWP for not less than 10 minutes prior to being brought into service. Temporarily out of service piping shall be tested in compliance with section 3-2.9 of this code prior to being brought back into service.
3-2.9 Testing. After installation, prior to being placed into service, all container connections and all field-erected piping, tubing, hose, and hose assemblies shall be tested and proved H_2 gas-tight for the rated pressure, volume, and temperature of the gas transported by an approved method as outlined in ASME B31.3, "*Process Piping,*" adopted by reference in section 8-1, or the following:
(a) Perform a pressure test at 1.1 times MAWP, a minimum of 10 minutes.
(b) During pressure test, check for pressure decay. If leakage is detected, use leak detection fluid to find local leaks.
Energize the piping with H_2 at the MOP, and check for local leaks with a "sonic tester," "sniffer," or method acceptable to the department based on the best interests of public health, safety, welfare and the environment.
If the test "fails" the requirements in subsections (a), (b), or (c) of this section, the system must be purged with an inert gas, repaired, and subsections (a), (b), and (c) of this section shall be repeated until the test "passes."
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7035 Vaults for aboveground containers.
Rule 35. Sections 3-3 to 3-3.2 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
Vaults for aboveground containers. Vaults may be installed aboveground, underground or partially buried.
3-3.1 General. Aboveground containers may be installed in vaults that meet the requirements of section 3-3. Except as

modified by the provisions of section 3-3, vaults shall meet all other applicable provisions of these rules.
Vault design and construction. Vaults shall be designed and constructed to meet the following requirements:
The walls and floor of the vault shall be constructed of reinforced concrete at least 6 inches (15.24 centimeters) thick.
The top of an aboveground vault shall be constructed of noncombustible material and shall be designed to be weaker than the walls of the vault to ensure that, in the event of any explosion, the thrust occurring inside the vault is directed upward before destructive internal pressure develops within the vault. The top of an at-grade or below-grade vault shall be designed to relieve or contain the force of any explosion occurring inside the vault. The walls of a vault, which are partially below-grade, shall extend not less than 4 feet (1.2 meters) abovegrade.
The top and floor of a below-grade vault and the container foundation shall be designed to withstand all anticipated loading from vehicular traffic, where applicable.
The walls and floor of a below-grade vault shall be designed to withstand anticipated soil and hydrostatic loading. The vault shall be liquid tight.
Adjacent vault may share a common wall.
The vault enclosure shall not have openings except those necessary for access to, inspection of, and filling, emptying, and venting of the container.
When required, the vault shall be designed to be wind and earthquake resistant, in accordance with good engineering practice.
The vault shall be provided with an open and continuous vent to provide ventilation to dilute, disperse, and remove any vapors. This continuous vent line shall terminate 12 feet (3.7 meters) abovegrade.
(i) Each vault shall be provided with a means for personal entry, which shall only be at the top of the vault to allow for the visual inspection of the container and piping surfaces. At each entry point, a warning sign that indicates the need for procedures for safe entry into a confined space shall be posted. Each entry point shall be secured against unauthorized entry and vandalism.
(j) The vault shall be provided with an approved means to admit a fire suppression agent.
(k) The loading and unloading transfer connection for abovegrade vaults shall terminate outside the vault.
(l) Provisions shall be made for the normal operation of valves without entering the vault.
(m) A vault shall be located not less than 15 feet (4.6 meters) from buildings and property lines.
(n) Container selection and arrangement. Containers shall be listed for aboveground use. Each container or manifolded system, shall be in its own vault and shall be completely enclosed by the vault, and securely fastened to the floor of the vault. Sufficient clearance between the container and the vault shall be provided to allow for visual inspection and maintenance of all the vault surfaces as well as the tank and its appurtenances.
(o) The vault shall be provided with a continuous H_2 gas leak detection device with an audible alarm set at 25% of the LEL and will render the system inoperable. The H_2 leak detection device shall function during system maintenance operations.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7036 Location of dispensing operations and equipment.
Rule 36. Sections 3-4 to 3-4.5 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
Location of dispensing operations and equipment.
Dispensing equipment located outdoors shall be in accordance with the following:
Dispensing equipment shall be allowed under weather protection in accordance with the requirements of section 4-5 and constructed in a manner that prevents the accumulation of H_2 gas.
Gaseous H_2 compression and storage equipment located on top of motor fuel-dispensing facility canopies shall be in accordance with the following:
(a) Canopies shall be constructed in accordance with the requirements for weather protection found in section 2209.3.2.6 of the International Fire Code.
(b) Fuel-dispensing areas under canopies shall be equipped throughout with an approved automatic sprinkler system. Operation of the fire sprinkler system shall activate the emergency functions of the following:
(i) Operation of the fire sprinkler system shall activate an automatic emergency discharge system, which will discharge the H_2 gas from the equipment on the canopy top through the vent pipe system.
Operation of the fire sprinkler system shall activate the emergency shutdown control in section 7-6.
Approved signage having a minimum of 3-inch (7.62 centimeters) block letters shall be affixed on all sides on the exterior of the canopy structure stating either CANOPY TOP HYDROGEN STORAGE or using NFPA 704, "*Standard System for the Identification of Fire Hazards of Materials*," 1996 edition, adopted by reference in section 8-1.1.
System must be in compliance with section 3-2.2.2.
Dispensing equipment located outdoors shall be aboveground, shall not be beneath electric power lines or where exposed by their failure, and shall be a minimum of 10 feet (3.1 meters) from the nearest important building or property line or 20 feet (6.1 meters) from any activity that involves a fixed source of ignition.

Dispensing equipment shall be located so that all parts of the vehicle being served are on the premises of the motor fuel dispensing facility.
Dispensing equipment shall be protected against collision damage by means acceptable to the department. Dispensing equipment shall be securely bolted in place. Dispensing equipment shall be installed in accordance with manufacturer's instructions.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7037 Installation of emergency shutdown equipment.
Rule 37. Sections 3-5 to 3-5.2 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
Installation of emergency shutdown equipment.
Breakaway protection shall be provided in a manner such that, if a pull away event occurs, H_2 gas will cease to flow at any separation.
A breakaway device shall be installed at every dispensing point. Such a device shall be arranged to separate by a force not greater than 150 pounds (75 kilograms), when applied in any direction that the vehicle would move. Breakaway devices shall be compatible with a standard acceptable to the department.
History: 2008 MR 8, Eff. May 1, 2008.

Chapter 4 Design considerations at specific locations

R 29.7038 Outdoor locations.
Rule 38. Sections 4-1, 4-1.1, and 4-1.2 were reproduced from NFPA 50A as follows:
4-1 Outdoor Locations.
4-1.1 Where protective walls or roofs are provided, they shall be constructed of noncombustible or limited-combustible materials.
4-1.2 Electrical equipment within 15 feet (4.6 m) shall be in accordance with Article 501 of NFPA 70, *National Electrical Code*®, for Class I, Division 2 locations.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7039 Separate buildings.
Rule 39. Sections 4-2.1, 4-2.4 to 4-2.6 are reproduced from NFPA 50A, and sections 4-2.2, and 4-2.3 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
4-2 Separate buildings.
4-2.1 Separate buildings shall be constructed of noncombustible or limited-combustible materials. Windows and doors shall be located so as to be readily accessible in case of emergency.
Exception: Window glazing shall be permitted to be plastic.
4-2.2 Ventilation to the outdoors shall be provided. Inlet openings shall be located within 18 inches (30 centimeters) of the floor in exterior walls only. Outlet openings shall be located at the high point of the room in exterior walls or roof. Inlet and outlet openings shall each have a minimum total area of 1 square foot/1,000 cubic feet (1 square meters/305 cubic meters) of room volume. Discharge from outlet openings shall be directed or conducted to the atmosphere.
4-2.3 Deflagration venting shall be provided in exterior walls or roof only.
4-2.3.1 Vents shall be any 1 or any combination of the following:
(a) Walls of light material.
(b) Lightly fastened hatch covers.
(c) Lightly fastened, outward opening doors in exterior walls.
(d) Lightly fastened walls or roof.
(e) Other methods in accordance with NFPA 69.
4-2.3.2 Where applicable, snow loads shall be considered.
4-2.4 There shall be no sources of ignition from open flames, electrical equipment, or heating equipment.
4-2.5 Electrical equipment shall be in accordance with Article 501 of NFPA 70, *National Electrical Code*, for Class I, Division 2 locations.
4-2.6 Heating, if provided, shall be by steam, hot water, or other indirect means except that electrical heating may be used if in compliance with 4-2.5.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7040 Special rooms.
Rule 40. Sections 4-3.2 to 4-3.6 are reproduced from NFPA 50A, and sections 4-3.1, 4-3.7 to 4-3.9, and table 4-3.9 of the

storage and handling of gaseous and Liquefied H_2 code are added as follows:
4-3 Special rooms.
4-3.1 Floor, walls, and ceiling shall be constructed of noncombustible or limited-combustible materials. Interior walls or partitions shall have a fire resistance rating of at least 2 hours, shall be continuous from floor to ceiling, and shall be securely anchored. At least 1 wall shall be an exterior wall. Windows and doors shall be located so as to be readily accessible in case of emergency.
Exception: Window glazing may be of plastic.
4-3.1.1 If access to the room from outside the primary structure is not possible, access from within the primary structure shall be made through 1 vapor-sealing 2-hour self-closing fire door.
4-3.2 Ventilation shall be as provided in section 4-2.2.
4-3.3 Explosion venting shall be as provided in section 4-2.3.
4-3.4 There shall be no sources of ignition from open flames, electrical equipment, or heating equipment.
4-3.5 Electrical equipment shall be in accordance with Article 501 of NFPA 70, *National Electrical Code*, for Class I, Division 2 locations.
4-3.6 Heating, if provided, shall be by steam, hot water, or indirect means except that electrical heating shall be permitted to be used if in compliance with 4-3.5.
4-3.7 Room ventilation.
4-3.7.1 The ventilation shall be at least 1 cubic feet/minute/square feet (0.3 cubic meters/minute/square meters) of room area, but not less than 1 cubic foot/minute/12 cubic feet (0.3 cubic meters/minute/3.7 cubic meters) of room volume and shall be designed such that an accumulation of H_2 at a concentration equal to or greater than 25% of the lower flammability limit shall not occur in any part of the room.
Where installed, a gas detection system shall be equipped to sound an alarm and visually indicate when a maximum of 25% of the lower flammable limit is reached. At 40% of the lower flammable limit the gas detection system shall shut down the hydrogen system and provide notification to the system operator.
4-3.7.3 Any failure of the ventilation system shall immediately shut down the fueling system and provide notification to the system operator. Reactivation of the fueling system shall be by manual restart and shall be conducted by trained personnel.
4-3.7.4 The gas detection system shall function during ventilation system maintenance operations.
4-3.7.5 A ventilation system for a room within or attached to another building shall be designed to ensure that all areas serviced by the ventilation system meet performance requirements in accordance with section 4-3.7 during the normal operating conditions and during alarm conditions.
4-3.8 Warning signs.
4-3.8.1 Access doors shall have warning signs with the words "WARNING – NO SMOKING – NON ODORIZED FLAMMABLE GAS – NO OPEN FLAMES. The wording shall be in plainly legible, bright red letters not less than 1 inch (2.54 centimeters) high on a white background.
Indoor attended fast-fill fueling.
4-3.9.1 Attended indoor fast-fill fueling system shall be in accordance with subsections (a) to (k) of this section.
(a) Gas storage equipment shall be located outdoors unless approved by the department. Gas processing and compression equipment shall be listed or approved for indoor use or located outdoors.
(b) An emergency manual shutdown device shall be located in the dispensing area not less than 20 feet (6.1 meters) and not more than 100 feet (30.5 meters) in the path of egress from the dispensing area. Actuation of the emergency manual shutdown device shall perform in accordance with subsection (h) of this section.
(c) The dispenser shall be equipped with a gas detection system which shall actuate in accordance with subsection (h) of this section when a maximum of 25% of LFL is detected (1% H_2 in air).
(d) The dispenser shall be equipped with a leak detection system capable of identifying a leak from the dispensing system outside the dispenser housing by conducting a pre-fill pressure test. The leak detection must be capable of detecting a minimum leak rate of 1.9 gallons/minute and shall actuate in accordance with subsection (h) of this section when a leak is detected.
(e) Whether the fill is communicated or non-communicated, the dispensing system must be listed, labeled, or approved to insure that the fills are protective of the safety of the temperature, pressure and flow rate of the on-board fuel system during fueling.
(f) The dispensing area shall be equipped with a fire detection system and shall actuate in accordance with subsection (h) of this section if a fire is detected.
(g) A ventilation system shall be installed for the dispensing area. The ventilation system shall be capable of delivering ventilation air as provided in section 4.3.7. The ventilation system shall operate prior to dispenser operation, during fueling, and for at least 1 minute after fueling has been completed. The ventilation flow rate shall be monitored. Failure or reduction of the ventilation flow rate below the required flow rate shall shut down the dispensing system.

Exception: A dispensing area ventilation system is not required when the fuel delivery per refueling event is less than those listed in table 4-3.9.

Table 4-3.9

Room Size (m3)	Maximum fuel delivery per refueling event that does not require room ventilation (kg)
1000	0.8
2000	1.7
3000	2.5
4000	3.3
5000	4.2

(h) The actuation of any 1 of the systems listed in subsections (b) to (g) of this section shall be in accordance with table 4-3.9, and shall shut down the dispenser, stop the flow of gas into the room, and start or continue to run the ventilation system, if required.
1. Reactivation of the dispenser and gas flow into the room shall be by manual restart and shall be conducted by trained personnel.
(i) Interior walls, doors, and window openings within 15 feet (4.6 meters) of the dispenser shall be constructed of materials having a fire rating of at least 2 hours. Wall penetrations shall require use of listed fire rated equipment.
(j) The owner/operator shall not allow hot work/open flames within 15 feet (4.6 meters) of the refueling location unless the dispenser is shut down, depressurized, and purged.
(k) If H_2 is to be removed from the vehicle storage system, H_2 shall be discharged into a closed transfer system or vented outdoors in accordance with CGA G-5.5, "Hydrogen Vent Systems", adopted by reference in section 8-1.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7041 Indoor H_2 storage system location.
Rule 41. Sections 4-4 to 4-4.6, and table 4-4.1of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
Indoor H_2 storage system location.
H_2 systems of less than 3,500 scf (99 cubic meters) and greater than the maximum allowable quantity found in table 4.4.1, where located inside buildings outside of special rooms, shall be located in the building so that the system will be as follows:
In a ventilated area in accordance with the provisions of section 4-3.7.
Separated from incompatible materials.
15 feet (4.6 meters) from ordinary electrical equipment, and 25 feet (7.6 meters) from open flames or welding or other sources of ignition.
50 feet (15.2 meters) from other low-pressure flammable gas storage (less than 500 psig).
Protected against damage in accordance with the provisions of section 2.1.5.

Table 4-4.1
Quantity Thresholds for Gases Requiring Special Provisions

Material	Unsprinklered areas		Sprinklered areas	
	No gas cabinet, gas room, or exhausted enclosure	Gas cabinet, gas room, or exhausted enclosure	No gas cabinet, gas room, or exhausted enclosure	Gas cabinet, gas room, or exhausted enclosure
Cryogenic liquid (flammable or oxidizing)	45 gal	90 gal	90 gal	180 gal
Flammable gas liquefied nonliquefied	14 kg_3 (30 lb) 28 m^3 (1,000 ft^3)	27 kg_3 (60 lb) 28 m^3 (2,000 ft^3)	27 kg_3 (60 lb) 28 m^3 (2,000 ft^3)	55 kg_3 (120 lb) 56 m^3 (4,000 ft^3)

More than 1 system of 3,500 scf (99 cubic meters) or less shall be permitted to be installed in the same room or area outside

of special rooms, provided the systems are separated by at least 50 feet (15.2 meters), or by a full height fire-resistive partition having a minimum fire resistance rating of 2 hours is located between the systems.
Each system described in section 4-4.2 shall meet all of the requirements of section 4-4.1.
The separation distance between multiple systems of 3,500 scf (99 cubic meters) or less shall be permitted to be reduced to 25 feet (7.6 meters) in buildings where the space between storage areas is free of combustible materials and protected with a sprinkler system.
When sprinkler protection is provided, the area in which H_2 is stored or used shall be protected with a sprinkler system designed to be not less than that required by NFPA 13, "*Standard for the Installation of Sprinkler* Systems," adopted by reference in section 8-1, for ordinary hazard group 2 with a minimum design area of 3,000 square feet (914.4 square meters).
When sprinkler protection is provided, the area in which the H_2 is stored or used shall be protected with a sprinkler system designed to be not less than that required by NFPA 13, "*Standard for the Installation of Sprinkler Systems*," adopted by reference in section 8-1, for extra hazard group 1 with a minimum design area of 2,500 square feet (762 square meters).
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7042 Canopies.
Rule 42. Sections 4-5 to 4-5.2 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
4-5 Canopies.
4-5.1 A container installation that has a canopy or roof shall have prior approval by the department based on the best interests of public health, safety, and welfare and the environment. This canopy or roof shall not limit the dissipation of heat or dispersion of flammable vapors and cannot restrict firefighting access and control.
4-5.2 A roof or canopy must meet all of the following conditions:
(a) The lowest elevation of the roof or canopy shall not be less than 4 feet (1.8 meters) from the top of the container.
(b) All container vent(s) are extended through the roof or canopy.
(c) The roof or canopy is constructed in such a way that it will not allow vapors to accumulate under the canopy or roof.
(d) Be constructed of noncombustible materials
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7043 Fast-fill station.
Rule 43. Sections 4-6 to 4-6.2 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
4-6 Fast-fill station.
4-6.1 Each line between a gas storage facility and a dispenser at a fast-fill station shall have a valve that closes when 1 of the following occurs:
The power supply to the dispenser is cut off.
Any emergency shutdown device at the refueling station is activated.
4-6.2 A manual shutoff valve shall be provided at a fast-fill station upstream of the breakaway device specified in section 3-5, where it is readily accessible to the person dispensing H_2, unless either of the following occurs:
(a) The self-closing valve referred to in section 4-6.1 is located immediately upstream of the dispenser.
(b) The dispenser is equipped with a self-closing valve that closes each time the dispenser is deactivated or when an emergency device is activated.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7044 Vehicle fueling appliances in nonresidential occupancies.
Rule 44. Sections 4-7 to 4-7.7 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
4-7 Vehicle fueling appliances (VFA) in nonresidential occupancies.
VFAs shall not exceed a gas flow of 36 scf/minute.
VFAs shall be listed.
4-7.3 VFAs may be used to fill stationary containers at vehicular fueling locations.
A VFAs installed with storage containers shall comply with the provisions of chapters 2, 3, and 4.
The installation of VFAs at a residence shall comply with the requirements of section 4-9.
Where more than 1 VFA are located in a common area, spacing between the VFAs shall not be less than 3 feet (1 meter), unless permitted in the manufacturer's recommendations.
Unless specifically permitted in the manufacture's recommendations, multiple VFAs shall not be manifolded together on the discharge side.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7045 Installation of electrical equipment.

Rule 45. Sections 4-8 to 4-8.2 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
Installation of electrical equipment.
Electrical equipment and wiring shall be specified and installed in accordance with NFPA 70, "*National Electrical Code*," adopted by reference in section 8-1.
Static protection shall be required when gaseous H_2 cargo transport vehicles are loaded or unloaded. This can be achieved when cargo transport vehicles or marine equipment are loaded or unloaded by grounding cable, conductive hose, flexible metallic tubing, or pipe connections where both halves of metallic couplings are in contact.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7046 Residential fueling facility.
Rule 46. Sections 4-9 to 4-9.11 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
Residential fueling facility (RFF).
Application. This section applies to the design, construction, installation, and operation of an RFF.
Storage of H_2 in quantities not exceeding 3,500 scf (99 cubic meters) at 12,500 psig shall be permitted in systems listed by a national recognized testing laboratory.
4-9.2.1 The RFF may store H_2 indoors or outdoors. Indoor storage of H_2 shall not exceed 3,500 scf (99 cubic meters) at 7,700 psig provided that indoor storage is ventilated per section 4-3.7, or storage shall be in a separate sealed enclosure ventilated directly to outdoors.
System component qualifications. System components not part of a listed fueling appliance shall comply with the appropriate provisions of chapter 2.
Fueling appliances shall be listed.
General safety requirements. All equipment related to RFF installation shall be protected to minimize the possibilities of physical damage and vandalism. The use of an enclosure for the compressor package, similar to that of a central air conditioner, shall be permitted to satisfy this requirement.
All equipment related to RFF installation shall be designed for the pressure, temperature, and service expected.
Vehicles shall not be considered a source of ignition.
Exception: Vehicles containing fuel-fired equipment, such as recreational vehicles, shall be considered a source of ignition unless this equipment is shutoff completely before entering an area in which ignition sources shall not be permitted.
Unless specifically permitted in the manufacturer's recommendations, multiple RFFs shall not be manifolded together on the discharge side.
Where more than 1 RFF is located in a common area, spacing between the RFFs shall not be less than 3 feet (1 meter) unless permitted by the manufacturer's recommendations.
Installation.
General. All RFF equipment shall include manufacturer's recommendations and such recommendations shall include, but may not be limited to, the requirements for the proper installation, operation, and maintenance of the RFF. The RFF shall be installed, operated, and maintained in accordance with the manufacturer's recommendations.
The RFF shall have a nameplate marked with minimum and maximum gas inlet pressure and flow rate, gas outlet maximum pressure, and electrical requirements.
Indoors. Where it is necessary to install the compression unit and refueling connections indoors, the compression unit shall be mounted or otherwise located such that the compression unit is vented outdoors.
Where the RFF or the vehicle being fueled is located indoors, a gas detector set to operate at ~~1/5~~ 25% the lower limit of flammability of H_2 shall be installed in the room.
The detector shall be located within 6 inches (15.2 centimeters) of the ceiling or the highest point in the room.
The detector shall stop the flow of H_2 and operate an audible or a visual alarm.
Installation of pressure relief valves shall have pressure relief device vents or vent lines to convey escaping gas to the outdoors and then upward to a safe area to prevent impinging on buildings, other equipment, or areas open to the public, such as sidewalks.
4-9.7 Piping and hose. A fueling hose shall be limited to a maximum length of 25 feet (7.62 meters) and shall be protected from mechanical damage from abrasion and from being driven over by a vehicle.
4-9.7.1 Transfer systems shall be capable of depressurizing the nozzle to facilitate disconnection. Bleed connections shall lead to a safe point of discharge.
Testing. All piping and tubing shall be tested after assembly according to section 2-6.
Installation of emergency shutdown equipment. An RFF shall be equipped with emergency manual shut down of the fuel supply prior to the RFF device. The emergency manual shutdown actuator shall be at least 5 feet (1.52 meters) from the RFF and in view of the RFF.
Breakaway protection shall be provided in a manner so that, in the event of a pull away, H_2 ceases to flow.

The breakaway devices shall comply with ANSI/CSA HGV 4.4, "*breakaway devices for dispensing systems*," adopted by reference in section 8-1.
A breakaway device shall be installed at every dispensing point.
The breakaway device in 4-9.8.2.3 shall be arranged to separate using a force not greater than 150 pounds (75 kilograms) when applied in a horizontal direction.
Operation. An RFF shall be operated in accordance with the manufacturer's instructions.
A fuel supply container shall not be charged in excess of its maximum allowable service pressure at normal temperature.
U.S. DOT containers shall be charged in accordance with U.S. DOT regulations.
Where H_2 is being transferred to a motor vehicle, the engine shall be turned off.
Maintenance and inspection. All RFF equipment shall be inspected and maintained in accordance with the manufacturer's instructions.
History: 2008 MR 8, Eff. May 1, 2008.

Chapter 5 Operation and maintenance

R 29.7047 Operation.

Rule 47. Section 5-1 is reproduced from NFPA 50A, and sections 5-1.1 to 5-1.3 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
5-1 Operation. For installations that require any operation of equipment by the user, instructions shall be maintained at operating locations.
A vehicle container shall not be charged in excess of the service pressure compensated for the differences in temperature from nominal.
5-1.2 H_2 vehicle containers shall not be subjected to pressure in excess of 125% of the marked service pressure even if, on cooling, the pressure settles to the marked service pressure.
Where an overpressure incident that results in operation of the overpressure protection system of the dispenser occurs, the dispenser pressure control system shall be examined and certified by a qualified operator prior to being returned to service.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7048 Maintenance.

Rule 48. Section 5-2 is reproduced from NFPA 50A, and sections 5-2.1 to 5-2.11 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
5-2 Maintenance. Each hydrogen system installed on consumer premises shall be inspected annually and maintained by a qualified representative of the equipment owner.
5-2.1 Hoses, nozzles and breakaways shall be examined visually to ensure that they are safe for use and shall be maintained in accordance with manufacturer's instructions on at least a quarterly basis or earlier if required by the manufacturer
Hose shall be tested for leaks per manufacturer's requirements and any leakage shall be a reason for rejection and replacement.
Testing shall be carried out with helium or with helium/ H_2 blend as the test gas or if this is not possible, with H_2 using suitable precautions.
The facility operator shall maintain a maintenance log in good condition and accessible to department inspection. Records shall be maintained for a minimum of 2 years.
5-2.5 Controllers on fuel stations shall be designed to verify the integrity of the fuel hose, breakaway, nozzle, and receptacle by pressurizing these components to at least the vehicle backpressure and checking pressure drop prior to the start of fueling.
5-2.6 Containers and their appurtenances, piping systems, compression equipment, controls, and detection devices shall be maintained in operating condition and according to manufacturer's instructions.
Pressure relief valves shall be maintained in operating condition.
Maintenance personnel shall be trained in leak detection procedures.
Area within 10 feet (3.1 meters) of dispenser shall be free from debris, weeds and other material that present a fire hazard.
Safety, gas detection, and fire protection equipment shall be tested or inspected at intervals not to exceed 6 months.
Maintenance activities on fire control equipment shall be scheduled so that a minimum of equipment is taken out of service at any 1 time and fire prevention safety is not compromised.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7049 Clearance to combustibles.

Rule 49. Section 5-3 of the storage and handling of gaseous and Liquefied H_2 code is added as follows:
5-3 Clearance to combustibles. The area within 10 feet (3.1 meters) of any H_2 container shall be kept free of dry vegetation

and combustible material.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7050 Cathodic protection maintenance.
Rule 50. Sections 5-4 and 5-4.1 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
5-4 Cathodic protection maintenance.
5-4.1(a) Owners and operators shall ensure that all metallic container systems that are underground, mounded, or partially underground are protected and maintained to minimize corrosion as cited in the NACE standard RP0169 entitled "*Recommended Practice, Control of External Corrosion of Underground or Submerged Metallic Piping Systems*" and NACE recommended practice RP0285 entitled "*Corrosion Control of Underground Storage Tank Systems by Cathodic Protection.*"
(b) All corrosion protection systems shall be operated and maintained to continuously provide corrosion protection to the metal components of the portion of the ASME approved container system that routinely contains H_2 gas and that is in contact with the ground.
(c) All container systems equipped with cathodic protection systems shall be inspected for proper operation by a NACE certified cathodic protection tester as defined in section 1-5. The H_2 system shall be tested within 6 months of installation and at least once each calendar year at intervals not to exceed 15 months.
(d) Container systems equipped with impressed current cathodic protection systems shall be inspected by the owner every 60 days to ensure that the equipment is operating within design specifications. The design limits shall be readily available.
(e) If container systems are equipped with cathodic protection, then the owner or operator shall maintain records to demonstrate that the cathodic protection is in compliance with the performance standards of this section. The records shall provide both of the following:
(1) The results of the last 3 inspections required in subsection (d) of this section.
The results of testing from the last 2 inspections required in subsection (c) of this section.
(f) Within 6 months following the repair of any cathodically protected container system, where the repairs may affect the operation of the cathodic protection system, the system shall be tested in accordance with subsections (c) and (d) of this section to ensure that it is operating properly.
(g) Repairs or replacement of a cathodic protection system shall be conducted by a NACE certified corrosion expert as defined in section 1-5. General system maintenance of the cathodic protection system including, but not limited to, replacement of fuses, and splicing of cable would not be required to be designed by a corrosion expert and shall be approved by the department to not increase the hazard to public health, safety, and welfare and the environment.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7051 Stray or impressed currents and bonding.
Rule 51. Sections 5-5 to 5-5.3 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
Stray or impressed currents and bonding.
Where stray or impressed currents are used or can be present on dispensing systems, such as cathodic protection, protective measures to prevent ignition shall be taken.
Static protection between the fuel dispenser and the vehicle shall not be required where H_2 is transferred by conductive hose, flexible metallic tubing, or pipe connections where both halves of the metallic couplings are in continuous contact.
The transfer surface shall be concrete or shall have a resistivity not exceeding API-RP 2003, "*protection against ignitions arising out of static, lightning, and stray currents*," adopted by reference in section 8-1, performance criteria of 1 megohm as measured using a method acceptable to the department, such as EN 1081 1998 "*Resilient Floor Coverings – Determination of the Electrical Resistance.*", adopted by reference in section 8-1.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7052 Emergency plan.
Rule 52. Sections 5-6 to 5-6.2 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
Emergency plan.
An emergency plan shall be prepared and updated wherever gaseous or liquefied H_2 are produced, handled, stored, or used.
The plan shall be available to the department for inspection upon reasonable notice and shall include the following information:
The type of emergency equipment available and its location.
A brief description of any testing or maintenance programs for the available emergency equipment.
An indication that hazard identification labeling is provided for each storage area.
Location of posted emergency procedures.
A material safety data sheet (MSDS or equivalent) that is available for the gaseous or liquefied H_2 stored or used on the site.

A list of personnel or site operating authority who are designated and trained to be liaison personnel for the fire department and who are responsible for, but shall not be limited to, the following:
Aiding the emergency responders in pre-emergency planning.
Identifying the location of the gaseous and liquefied H_2 stored or used.
Accessing material safety data sheets.
Knowledge of the site emergency procedures.
(g) A list of types and quantities of gaseous and liquefied H_2 found within the facility.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7053 Release of H_2.
Rule 53. Sections 5-7 to 5-7.2 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
Release of H_2.
Records of unexpected discharges. Accurate records of the unexpected discharge of gaseous or liquefied H_2 shall be kept by the facility and made readily available upon request. The records shall be kept for a minimum of 2 years.
Container or PRD failure. When an unexpected discharge due to container or PRD failure is discovered the department and the local fire department shall be immediately notified, and the container shall be repaired or be removed from service.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7054 Security.
Rule 54. Sections 5-8 and 5-8.1 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
Security.
Compressed gas cylinders, containers, and systems shall be secured against accidental dislodgement and against access by unauthorized personnel.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7055 Leaks, damage, or corrosion.
Rule 55. Sections 5-9 and 5-9.1 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
Leaks, damage, or corrosion.
Leaking, damaged, or corroded gaseous H_2 systems shall be removed from service, replaced, or repaired.
History: 2008 MR 8, Eff. May 1, 2008.

Chapter 6 Fire protection

R 29.7056 Fire protection; caution.
Rule 56. Section 6-1 is reproduced from NFPA 50A as follows:
6-1 Caution. Personnel shall be cautioned that hydrogen flames are practically invisible.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7057 Signage.
Rule 57. Sections 6-2 to 6-2.2 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
Hazard identification signs shall be conspicuously placed at all locations where H_2 gas is produced, stored, used, or handled.
6-2.1 Ratings shall be assigned in accordance with NFPA 704, standard system for the identification of the hazards of materials for emergency response.
6-2.2 The hazard classification of the metal hydride storage system shall be based on the H_2 stored without regard to the metal hydride content.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7058 Identification signs.
Rule 58. Sections 6-3 to 6-3.2 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
6-3 Signs prohibiting smoking or open flames within 25 feet (7.6 meters) shall be provided where H_2 gas is produced, stored, or used.
A sign with the following legends printed in red capital letters on a white background shall be conspicuously posted:
"NONODORIZED FLAMMABLE GAS - NO SMOKING – NO OPEN FLAMES"
All lettering on signage shall be 3 inches (7.62 centimeters) or more.
Exception: This does not apply to motor vehicle dispensing per sections 7.2.16 and 4-3.8.1.
6-3.2 Identification signs. Visible hazard identification signs shall be provided in accordance with NFPA 704, "*Standard*

System for the Identification of the Hazards of Materials for Emergency Response," adopted by reference in section 8-1, at entrances to buildings or areas in which liquefied H_2 is stored, handled, or used.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7059 Fire protection.
Rule 59. Section 6-4 of the storage and handling of gaseous and Liquefied H_2 code is added as follows:
6-4 A portable fire extinguisher having a rating of not less than 40-B:C, or 2 20-B:C, shall be located within 75 feet (22.9 meters) from the pumps, dispensers, and container fill openings. Fire extinguishers shall be inspected and maintained according to NFPA 10, "*standard for portable fire extinguishers*," adopted by reference in section 8-1.1.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7060 Sprinkler protection.
Rule 60. Section 6-5 of the storage and handling of gaseous and Liquefied H_2 code is added as follows:
6-5 When sprinkler protection is provided, the area in which H_2 is stored or used shall be protected with an automatic sprinkler system designed to be not less than that required by NFPA 13, "*standard for the installation of sprinkler systems*," adopted by reference in section 8-1.
History: 2008 MR 8, Eff. May 1, 2008.

Chapter 7 Gaseous hydrogen compression, gas processing, storage, and dispensing systems

R 29.7061 System component qualifications.
Rule 61. Section 7-1 of the storage and handling of gaseous and Liquefied H_2 code is added as follows:
System component qualifications. System components shall comply with the appropriate provisions of chapters 2 and 3 of this part.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7062 General system requirements.
Rule 62. Sections 7-2 to 7-2.18 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
General system requirements.
All fuel dispensing facilities shall meet the provisions of this chapter.
7-2.2 Compression, processing, generation, storage, and dispensing equipment shall be protected to prevent damage from vehicles and minimize the possibilities of physical damage and vandalism and meet the requirements of section 2-1.5 and section 3-4.4.
7-2.2.1 Access to storage, compression, and gas processing equipment by members of the public shall be restricted by a suitable secure area.
7-2.3 Control devices shall be installed so that internal or external icing does not cause vehicle or fueling station malfunction.
7-2.4 Vehicles shall not be considered a source of ignition with respect to the provisions of this chapter.
Exception: Vehicles containing fuel-fired equipment, such as recreational vehicles and catering trucks, shall be considered a source of ignition unless this equipment is shut off completely before entering an area in which ignition sources are not permitted.
The fueling connection shall prevent the escape of gas where the connector is not properly engaged or becomes separated.
Fueling nozzles for H_2 service shall be in accordance with section 2-12.1.
Compression and gas processing equipment shall be designed for use with H_2 and for maximum pressures and temperatures to which it can be subjected under normal operating conditions.
Compression and gas processing equipment shall have pressure relief devices that limit each stage pressure to the maximum allowable working pressure for the compression cylinder and piping associated with that stage of compression and meets the requirements of chapter 2.
H_2 compression equipment shall be equipped with appropriate automatic shutdown controls.
Control circuits that shut down shall remain down until manually activated or reset by qualified personnel.
Engine-driven compressor installations shall conform where applicable to R 29.5101 et seq.
Gas processing equipment, including compression and generation equipment, in processes where liquid is present, shall incorporate means to minimize liquid carryover to the storage system.
A hazard analysis shall be conducted on every H_2 fueling system installation by a qualified engineer with proven expertise in H_2 fueling systems and installations.
Exception: This does not apply to section 4-9.

The hazard analysis shall include the following: fire protection measures, fire protection and suppression systems, detection systems, and ventilation.
At a minimum, the hazard analysis shall include consideration of potential failures in hoses, nozzles, dispensing equipment, as well as failures for maintenance and service.
Method used for hazard analysis shall be 1 or combination of several of the following recognized procedures: hazard and operability studies (HAZOPs), failure mode effects and criticality analysis (FMECA), preliminary hazards analysis (PHA), fault tree analysis (FTA) and event tree analysis (ETA). Other analysis methods, when used, shall ensure same level of system safety as provided by any of the recognized procedures and be acceptable to the department based on the best interest of the public health, safety, and welfare and the environment.
Standard designs that have been analyzed by recognized procedures need not be studied each and every time such installation occurs. Site-specific elements that are unique to the installation shall be reviewed in concert with the analysis performed on the standard system to ensure that the standard design has not been altered in a way that would negatively affect the hazard analysis.
These hazard analyses shall be available for review at final inspection, prior to the installation being placed into service, shall be maintained on site, and be available to the department upon request.
Dispensing systems shall be equipped to stop fuel flow automatically when a fuel supply container reaches the temperature-corrected fill pressure.
Dispensing systems shall be equipped with an overpressure protection device set at 140 percent of the service pressure of the fueling nozzle it supplies.
Warning signs shall be conspicuously posted in the dispensing area and shall incorporate the following or equivalent wording: "Stop Motor, No Smoking, Non-Odorized Flammable Gas. No Filling Of Portable Containers In Or On A Motor Vehicle."
Each H_2 -dispensing device shall be located not less than 10 feet (3.1 meters) from property lines, openings to buildings, and buildings of combustible wall construction. A dispensing device shall not be less than 20 feet (6.1 meters) from any activity that involves a fixed source of ignition. In addition, a dispenser shall not be placed beneath a power line.
Each container filling location that is open to the public shall have an attendant or supervisor on duty who meets the requirements of section 1-10.1 of the rules.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7063 Operating requirements for full-service H_2 motor fuel dispensing facilities.
Rule 63. Sections 7-3 to 7-3.2 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
Operating requirements for full-service H_2 motor fuel dispensing facilities.
Each motor fuel dispensing facility shall have an attendant or supervisor on duty whenever the facility is open for business. The attendant or supervisor shall dispense H_2 into fuel tanks of motor vehicles or into portable containers.
The provisions of section 2-1 of this part shall not prohibit the temporary use of a portable storage container in conjunction with the dispensing of H_2 into a container or motor vehicle or motorized equipment which is on the premises and which is not accessible to the public. A portable storage container installation shall only be made with the approval of the department and comply with all the requirements of section 2-13.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7064 Operating requirements for attended self-service motor fuel dispensing facilities.
Rule 64. Sections 7-4 to 7-4.5 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
Operating requirements for attended self-service motor fuel dispensing facilities.
Self-service motor fuel dispensing facility means that portion of a property where H_2 used as motor fuel is stored and dispensed from fixed, approved dispensing equipment into the fuel containers of motor vehicles by persons other than the facility attendant and shall also include, where provided, facilities for sale of other retail products.
There shall be at least 1 attendant on duty while the self-service facility is open for business. The attendant's primary function shall be to supervise, observe, and control the dispensing of H_2 while the H_2 is actually being dispensed.
The responsibility of the attendant shall be as follows:
(a) Prevent the dispensing of H_2 into portable containers in or on a motor vehicle.
(b) Control sources of ignition.
(c) Immediately activate emergency controls and notify the fire department of any fire.
The attendant or supervisor on duty shall be mentally and physically capable of performing the functions and assuming the responsibility prescribed in section 7-4.3.
Operating instructions shall be conspicuously posted in the dispensing area.
The dispensing area shall at all times be in clear view of the attendant, and the placing or allowing of any obstacle to come

between the dispensing area and the attendant control area is prohibited. This may be achieved by cameras, mirrors, or both. The attendant shall at all times be able to communicate with persons in the dispensing area.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7065 Operating requirements for unattended self-service motor fuel dispensing facilities.
Rule 65. Sections 7-5 to 7-5.5 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
Operating requirements for unattended self-service motor fuel dispensing facilities.
Unattended self-service shall be permitted subject to the approval of the department based on the best interests of public health, safety, and welfare and the environment. Users shall use a key, card, or other method which is unique to each user, and which is provided by the facility operator, and shall be properly trained in dispensing operations. The owner shall verify such training to the department upon request.
At least 1 emergency shutoff device specified in section 7-6 shall be provided, and shall be reset only by the owner or an owner's authorized agent.
Operating instructions shall be conspicuously posted in the dispensing area. The instructions shall include the location of emergency controls.
In addition to the warning signs specified in section 6-3, emergency instructions shall be conspicuously posted in the dispenser area. The instructions shall incorporate the following or equivalent wording:
"Emergency instructions
In case of fire:
(1) Use emergency stop button.
(2) Report accident by calling the local fire number. Report location."
A telephone or other approved, clearly identified means to notify the fire department shall be provided on the site in a location approved by the department.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7066 Emergency shutoff devices.
Rule 66. Sections 7-6 to 7-6.1 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
Emergency shutoff devices.
H_2 dispensing systems shall be provided with 1 or more clearly identified emergency shutoff devices or electrical disconnects at the dispensing area. Such devices or disconnects shall be installed in approved locations but not less than 10 feet (3.1 meters) and not more than 100 feet (30.5 meters) away from the dispensing area and which is along the means of egress. Emergency shutoff devices or electrical disconnects shall disconnect power and gas supply to all dispensing devices, to all remote pumps serving the dispensing devices, and to all associated power. When more than 1 emergency shutoff device or electrical disconnect is provided, all devices shall be interconnected. Resetting from an emergency shutoff shall require manual intervention and the manner of resetting shall be approved by the department.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7067 Refueling from transport vehicles.
Rule 67. Sections 7-7 to 7-7.11 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
Refueling from transport vehicles. The dispensing of H_2 in the open from a transport vehicle to a motor vehicle located at commercial, industrial, governmental, or manufacturing establishments and intended for fueling vehicles used in connection with their businesses shall be permitted if all of the requirements of sections 7-7.1 to 7-7.11 have been met.
The department shall be notified before commencing operations under section 7-7.
The transport vehicle shall comply with U.S. DOT requirements for the transportation of H_2.
Nighttime deliveries shall only be made in an area considered to be adequately lighted.
The transport vehicle flasher lights shall be in operation while dispensing operations are in progress.
Smoking materials, including matches, lighters, and other sources of ignition, including torches, shall not be used within 20 feet (6.1 meters) of the dispensing of H_2 in the open from a transport vehicle to a motor vehicle.
Each area where dispensing of H_2 in the open from a transport vehicle to a motor vehicle shall be provided with 1 or more listed fire extinguishers that have a minimum capability of 40-B:C. The fire extinguishers shall be readily accessible to the dispensing operation. Fire extinguishers shall be inspected and maintained under NFPA 10, "*Standard for Portable Fire Extinguishers,*" adopted by reference in section 8-1.
Mobile fueling shall take place aboveground, shall not be beneath electric power lines or where exposed by their failure, and shall be a minimum of 10 feet (3.1 meters) from the nearest important building, property line, or combustible storage.
Transport vehicle brakes shall be set and chock blocks shall be in place.
Persons performing dispensing operations shall be qualified to deliver and dispense H_2 fuels. Operations of transport

vehicles used for mobile fueling operations shall have access on-site or be in possession of an emergency communications device to notify the proper authorities if there is an emergency.
The transport vehicles shall be positioned with respect to vehicles being fueled to prevent traffic from driving over the delivery hose and between the transport vehicle and motor vehicle being fueled. The dispensing hose shall be properly placed on an approved reel or in an approved compartment before moving the transport vehicle.
Additional requirements. The transfer area must meet the requirements of section 5-5.
History: 2008 MR 8, Eff. May 1, 2008.

Chapter 8 Referenced publications

R 29.7068 Referenced publications.
Rule 68. Sections 8-1 to 8-1.2.10 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
The following documents or portions thereof are referenced within this standard as mandatory requirements and shall be considered part of the requirements of this standard. The edition indicated for each referenced mandatory document is the current edition, and cost as of the date of issuance of these rules. Copies of the adopted publications are available for inspection at the office of the Department of Environmental Quality, Waste and Hazardous Materials Division, Storage Tank Unit, P.O. Box 30241, Lansing, Michigan 48909-7741.
NFPA publications. National Fire Protection Association. 1 Batterymarch Park, P.O. Box 9101, Quincy, Massachusetts 02269-9101.
NFPA 10, "*Standard for Portable Fire Extinguishers,"* 2002 edition, $36.50.
NFPA 13, "*Standard for the Installation of Sprinkler Systems,"* 2002 edition, $70.00.
NFPA 51, "*Standard for the Design and Installation of Oxygen-Fuel Gas Systems for Welding, Cutting, and Allied Processes*," 2002 edition, $28.00.
NFPA 52, *"Vehicle Fuel Systems Code,"* 2006 edition, $36.00.
NFPA 55, "*Standard for the Storage, Use, and Handling of Compressed Gases and Cryogenic Fluids in Portable and Stationary Containers, Cylinders, and Tanks*," 2005 edition, $36.50.
NFPA 69, "*Standard on Explosion Prevention Systems,"* 2002 edition, $33.50.
NFPA 70, "*National Electrical Code,"* 2005 edition, $75.00.
NFPA 101, "*Life Safety Code,"* 2006 edition, $75.00.
NFPA 220, "*Standard on Types of Building Construction*," 1999 edition, $28.00.
NFPA 496, "*Standard for Purged and Pressurized Enclosures for Electrical Equipment,"* 2003 edition, $33.50.
NFPA 704, "*Standard System for the Identification of the Hazards of Materials for Emergency Response,"* 2001 edition, $33.50.
Other publications.
ASME publications. American Society of Mechanical Engineers, Three Park Avenue, New York, New York 10016-5990.
ANSI/ASME B31.3, "*Process Piping,"* 2002 edition, $240.00.
ASME International, "*Boiler and Pressure Vessel Code*, Section VIII," 2004 edition, $525.00.
ASTM publication. American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, Pennsylvania 19428-2959.
ASTM E136-04, "*Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 Degrees C,"* 2004 edition, $35.00.
CGA publications. Compressed Gas Association, 1725 Jefferson Davis Highway, Arlington Virginia 22202-4100.
CGA S-1.1, "*Pressure Relief Device Standards – Part 1 – Cylinders for Compressed Gases,"* 2002 edition, $196.00.
CGA S-1.2, "*Pressure Relief Device Standards – Part 2 – Cargo and Portable Tanks for Compressed Gases,"* 1995 edition, $145.00.
CGA S-1.3, "*Pressure Relief Device Standards – Part 3 – Stationary Storage Containers for Compressed Gases,"* 2003 edition, $145.00.
ANSI/CGA C-4, "*Method of Marking Portable Compressed Gas Containers to Identify the Material Contained,"* 2003 edition, $252.00.
CGA C-7, "*Guide to the Preparation of Precautionary Labeling and Marking of Compressed Gas Containers,"* 2000 edition, $268.00.
CGA G-5.5, "*Hydrogen Vent Systems,"* 2004 edition, $39.00.
IAS publications. International Approval Services, 8501 East Pleasant Valley Road, Cleveland, Ohio 44131.
ANSI/IAS NGV 4.4, "*Breakaway Devices for Dispensing Systems,"* 1999 edition, $57.00.
NACE publications. National Association of Corrosion Engineers International, 1440 South Creek Drive, Houston, Texas 77084.

NACE RP0169, *"Control of External Corrosion of Underground or Submerged Metallic Piping Systems," 2002* edition, $42.00.
NACE RP0285, *"Corrosion Control of Underground Storage Tank Systems by Cathodic Protection,"* 2002 edition, $37.00.
SAE publications. Society of Automotive Engineers, 400 Commonwealth Drive, Warrendale, Pennsylvania 15096.
SAE J2600, *"Compressed Hydrogen Surface Vehicle Fueling Connection Devices,"* 2002 edition, $59.00.
8-1.2.7 International codes council. 4051 West Flossmore Road, Country Club Hills, Illinois 60478-5795.
"International Fire Code," 2006 edition, section 2209.3.2.6, $61.50.
8-1.2.8 U.S. Government publications. U.S. Government Printing Office, Washington, DC 20402.
Title 49, Code of Federal Regulations, "*Transportation*," Parts 171-190, U.S. Department of Transportation "*Specifications and Regulations."*
ECS publications. European Committee for Standardization, Central Secretariat: rue de Stassart 36, B-1050, Brussels.
EN 1081, "*Resilient Floor Coverings, Determination of the Electrical Resistance,"* 1998 edition, $32.00.
API publications. American Petroleum Institute, 1220 L Street, Northwest, Washington, DC, 20005-5-4070.
API Recommended Practice 2003, "*Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents,"* 7th edition, $111.00.
History: 2008 MR 8, Eff. May 1, 2008.

PART 3. STORAGE AND HANDLING OF LIQUEFIED HYDROGEN NFPA 50B

Chapter 1 General information

R 29.7070 Scope.
Rule 70. Sections 1-1 to 1-1.3 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
1-1 Scope.
1-1.1 Application. This standard covers the requirements for the design, siting, construction, installation, spill containment, operation, maintenance, and dispensing from a liquefied H_2 system.
1-1.2 Nothing in this H_2 code shall be intended to prevent the use of systems, methods, or devices of equivalent or superior quality, strength, fire resistance, effectiveness, durability, environmental protection capability, or safety over those prescribed by this H_2 code, if technical documentation is submitted to the department to demonstrate equivalency and the system, method, or device is approved for the intended purpose.
1-1.3 This code shall apply to the design and installation of liquefied H_2 dispensing systems.
Exception: Dispensing into rail and aircraft.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7071 Retroactivity.
Rule 71. Sections 1-2 and 1-2.1of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
1-2 Retroactivity.
1-2.1 The provisions of this H_2 code are necessary to provide a reasonable level of protection from loss of life and property from fire and explosion. The provisions shall reflect situations and the state of the art prevalent when the H_2 code was issued. Unless otherwise noted, it shall not be intended that the provisions of this H_2 code be applied to facilities, equipment, structures, or installations that were existing or approved for construction or installation before the effective date of this H_2 code, except in those cases where it is determined by the department that the existing situation involves a distinct hazard to public health, safety, and welfare, and the environment.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7072 Definitions.
Rule 72. Section 1-3 of the storage and handling of gaseous and Liquefied H_2 code is added and section 1-3.1 is reproduced from NFPA 50B as follows:
1-3 Definitions.
"ANSI" means the american national standards institute.
"Approved" means acceptable to the department.
"ASME" means the american society of mechanical engineers.
"Authority having jurisdiction" means the department.
"Automatic emergency shutoff valve" means a designated fail-safe automatic closing valve designed to shut off the flow of gases or liquids that is initiated by a control system where the control system is activated by either manual or automatic means.

(f) “Bulk storage” means a single container or containers, where all containers draw down at the same time.
“Cargo transport container” means a mobile unit designed to transport gaseous or liquefied H_2.
“Cascade storage system” means storage in containers or cylinders arranged in banks where each bank acts as 1 large container. The banks are separated by switching valves to provide sequential drawdown of the banks. The bank may consist of 1 or more containers or cylinders.
(i) “Cathodic protection” means a technique to prevent the corrosion of a metal surface by making the surface the cathode of an electrochemical cell. This protection renders a metallic container or piping component negatively charged with respect to its environment. This protection shall be designed by a corrosion expert as defined by these rules.
(j) “Cathodic protection tester” means a person who can demonstrate an understanding of the principles and measurements of all common types of cathodic protection systems applicable to metal piping and container systems and who has education and experience in soil resistivity, stray current, structure-to-soil potential, and component electrical isolation measurements of metal piping and container systems. The person shall be certified as being qualified by the national association of corrosion engineers (NACE) international.
“Composite container” means a container fabricated of 2 or more materials that interact to facilitate the container design criteria.
(l) “Compression discharge pressure” means the varying pressure at the point of discharge from the compressor.
(m) “CGA” means the compressed gas association.
“Container” means a pressure vessel or cylinder used to store H_2.
“Container appurtenances” means devices connected to container openings for safety, control, or operating purposes.
“Container system” means a container or combination of containers and all attached appurtenances, valves, and piping.
“Container valve” means a valve connected directly to the container outlet.
(r) “Continuous gas detection system” means a gas detection system in which the instrument is maintained in continuous operation.
(s) “Corrosion expert” means a person who, by reason of thorough knowledge of the physical sciences and the principals of engineering and mathematics acquired by a professional education and related practical experience, is qualified to engage in the practice of corrosion control of container systems. The person shall be certificated as being qualified by NACE, as a senior corrosion technologist, a cathodic protection specialist, or a corrosion specialist or be a registered engineer who has certification and licensing that includes education and experience in corrosion control.
(t) “Corrosion protection” means protecting a container system to prevent the degradation of the metal through oxidation or reactivity with its environment.
(u) “Cryogenic fluid” means a fluid with a boiling point lower than -130 degrees Fahrenheit (-90 degrees Celsius) at an absolute pressure of 101.325 kPa (14.7 psia).
(v) “Cylinder” means a container constructed in accordance with the United States Department of Transportation specifications, Title 49, code of federal regulations (CFR), parts 171-190.
“Department” means the department of environmental quality.
“Director” means the director of the department of environmental quality.
“Dispensing station” means an H_2 installation that dispenses H_2 from storage containers into fuel supply containers or into portable cylinders by means of a compressor, reformer, vaporizer, or pressure booster.
“Emergency shutdown device (ESD)” means a device that closes all fueling operations within the fueling facility from either local or remote locations.
(aa) “Excess flow control” means to limit or stop the flow of H_2 gas from a source of supply, when there is a rupture, break, or ‘open valve to atmosphere’ condition that may present a hazard to personnel or the environment.
(bb) “Fail-safe” means a design feature that provides for the maintenance of safe operating conditions in the event of a malfunction of control devices or an interruption of an energy source.
(cc) “Fixed liquid level device” means a device that indicates when the container is filled to its maximum permitted liquid filling volume.
(dd) “Flow-through process container” means a container that forms an integral part of a production process through which there is a steady, variable, recurring, or intermittent flow of materials during the operation of the process and the container is utilized to carry out or control the heating, cooling, mixing, blending, separating, metering, or chemical reaction of materials. The processing is done on a regular basis and it is the primary function of the container. A flow-through process container does not include a container that is used for the storage of materials before its introduction into the production process or for the storage of finished products or by-products from the production process or a container that is only used to recirculate materials.
(ee) “Fuel dispenser system” means all the pumps, meters, piping, hose, and controls used for the delivery of fuel.
(ff) “Fueling connector” means a mating device at the refueling station, including shutoff valves that connect the fueling dispenser hose to the vehicle fuel filling system receptacle for the transfer of liquid or vapor.

(gg) "Gallon water capacity (wc)" means the amount of water in gallons at 60 degrees Fahrenheit (15.6 degrees Celsius) required to fill a container.
(hh) "Gas detection system" means a grouping of 1 or more sensors capable of detecting an H_2 leak at specified concentrations and activating alarms and safety systems.
(ii) "Gaseous H_2 system" means a system in which the H_2 is delivered, stored, and discharged in the gaseous form including the piping system. The gaseous H_2 system terminates at the point where the H_2 is dispensed.
(jj) "Hydrogen (H_2)" means the simplest and lightest element in the known universe, which exists as a gas except at low cryogenic temperatures. H_2 gas is a colorless, odorless and highly flammable gas when mixed with oxygen over a wide range of concentrations. H_2 forms water when combusted, or when otherwise joined with oxygen, as within a fuel cell.
(kk) "Hydrogen code" means the storage and handling of gaseous and liquefied H_2 rules as promulgated by the department.
(ll) "Hydrogen gas vehicle (HGV) or vehicle" means a self-propelled device on land; in, on, or by which any person or property is or may be transported or drawn upon, except for a device exclusively moved by human power; and which has the capability to use H_2 gas as an engine fuel.
(mm) "Ignition source" means any item or substance capable of an energy release of type and magnitude sufficient to ignite any flammable mixture of gases or vapors that could occur at the site.
(nn) "kPa" means absolute pressure in kilo-Pascals.
(oo) "kPag" means gauge pressure in kilo-Pascals.
(pp) "Labeled" means equipment or materials to which has been attached a label, symbol, or other identifying mark of an organization that is acceptable to the department and concerned with product evaluation, that maintains periodic inspection of production of labeled equipment or materials, and by whose labeling the manufacturer indicates compliance with accepted or approved standards of construction and or performance.
(qq) "Liquefied hydrogen system" means a system into which liquefied H_2 is delivered and stored and from which it is discharged in the liquid or gaseous form including the piping system. The liquid or gaseous H_2 system terminates at the point where the H_2 is dispensed.
(rr) "Listed" means equipment, materials, or services included in a list published by an organization that is acceptable to the department and concerned with evaluation of products or services, that maintains periodic inspection of production listed equipment or materials or periodic evaluation of services, and whose listing states that either the equipment, material, or service meets appropriate designated standards or has been tested and found suitable for a specified purpose.
(ss) "Manifolded storage system" means storage in containers arranged in banks where each bank acts as 1 large container. The banks are separated by switching valves to provide sequential drawdown of the banks. The bank may consist of 1 or more containers.
(tt) "Manual emergency shutoff valve" means a designated valve designed to shut off flow due to a rupture in pressurized piping system.
(uu) "Maximum allowable working pressure (MAWP)" means the maximum pressure to which any component or portion of the pressure system can be subjected.
(vv) "Maximum operating pressure (MOP)" means the steady-state gauge pressure at which a part or system normally operates.
(ww) "Metal hydride storage system" means a system for the storage of H_2 gas absorbed in solid material.
(xx) "Motor fuel dispensing facility" means that portion of the property where H_2 is stored and dispensed from fixed equipment into the fuel tanks of motor vehicles or marine craft or into approved containers, including all equipment used in connection therewith.
(yy) "NACE" means the national association of corrosion engineers, international.
(zz) "Original equipment manufacturer (OEM)" means an original equipment motor vehicle manufacturer that certifies that the motor vehicle complies with applicable federal motor vehicle safety codes.
(aaa) "Partially buried container" means a container that has part of, but less than 100%, of the container surface covered with earth.
(bbb) "Point of transfer" means the point where the transfer connection is made.
(ccc) "Portable container" means a container designed to be moved readily, as distinguished from containers designed for stationary installations. Portable containers, designed for transportation with H_2 filled to their maximum filling limit, include "cylinders," "cargo tanks," and "portable tanks," all 3 of which are defined separately. Containers designed to be readily moved from 1 usage location to another, but substantially empty of product, are "portable storage containers" and are defined separately.
(ddd) "Portable storage container" means a container similar to those designed and constructed for stationary installation, designed so that it can be moved readily over the highways, substantially empty of liquefied H_2, from 1 usage location to another. Such containers either have legs or other supports attached, or are mounted on running gear, such as trailer or semitrailer chassis, with suitable supports that can be of the fold-down type, allowing them to be placed or parked in a stable

position on a reasonably firm and level surface. For large-volume, limited-duration product usage, such as at construction sites and normally for 6 months or less, portable storage containers function in lieu of permanently installed stationary containers.
(eee) "Portable tank, or skid tank" means a container of more than 1,000 pounds (454 kilograms) water capacity used to transport H_2 handled as a package, that is, filled to its maximum permitted filling limit. Such containers are mounted on skids or runners and have all container appurtenances protected in such a manner that they can be safely handled as a package.
(fff) "Pressure relief device" means a pressure or temperature activated device used to prevent pressure from rising above a specified value and thereby prevent the rupture of a normally charged pressure vessel or a cylinder due to emergency or abnormal conditions.
(ggg) "Pressure vessel" means a container or other component designed in accordance with the ASME code.
(hhh) "psi" means pounds per square inch.
(iii) "psia" means pounds per square inch, absolute.
(jjj) "psig" means pounds per square inch gauge.
(kkk) "Rated pressure" means the pressure to which a component is rated provided that the MAWP is observed for temperature extremes.
(lll) "Release" means an unexpected discharge of H_2.
(mmm) "Remotely located manually activated shutdown control" means a control system that is designed to initiate shut down of the flow of gas or liquid that is manually activated from a point located some distance from the delivery system.
(nnn) "Service pressure" means the nominal gas pressure at a uniform gas temperature of 70 degrees Fahrenheit (15.6 degrees Celsius) when the equipment is properly and completely charged with gas; the nominal design pressure for which the equipment has been constructed.
(ooo) "Set pressure" means the start-to-discharge pressure for which a relief valve is set and marked.
(ppp) "Standard cubic foot (scf)" means 1 cubic foot of gas at 70 degrees Fahrenheit (21 degrees Celsius) and 14.7 psia (101 kPa).
(qqq) "Standard cubic foot per minute (scfm)" means the amount of gas flow in standard cubic feet per minute compensated for pressure and temperature.
(rrr) "Substantially empty" means a gas container of H_2 when the residual gas pressure is less than 10% of the maximum allowable working pressure of the vessel. A liquefied H_2 container is substantially empty when the liquid level within the container is less than 10% of its normal operating volume.
(sss) "Vaporizer" means a device other than a container that receives H_2 in liquid form and adds sufficient heat to convert the liquid to a gaseous state.
(ttt) "Vehicle-fueling appliance" means a self-contained listed assembly used for the compression and delivery of H_2 into vehicles including associated equipment and piping of the appliance.
1-3.1 NFPA official definitions.
Combustible liquid. A liquid having a closed-cup flash point at or above 100°F (37.8°C) and are subdivided as follows:
(a) Class II liquids include those having a flash point at or above 100°F (37.8°C) and below 140°F (60°C).
(b) Class IIIA liquids include those having a flash point at or above 140°F (60°C) and below 200°F (93.4°C).
(c) Class IIIB liquids include those having a flash point at or above 200°F (93.4°C).
Flammable liquid (Class I). Any liquid having a closed-cup flash point below 100°F (37.8°C) and having a vapor pressure not exceeding 40 psia (276 kPa) at 100°F (37.8°C).
Gallon. A standard U.S. gallon.

Limited-Combustible Material. A material, as defined in NFPA 220, *Standard on Types of Building Construction*, not complying with the definition of noncombustible material that, in the form in which it is used, has a potential heat value not exceeding 3500 Btu/lb (8141 kJ/kg) and complies with one of the following paragraphs (a) or (b). Materials subject to an increase in combustibility or flame spread rating, beyond the limits herein established, through the effects of age, moisture, or other atmospheric condition are considered combustible.
(a) Materials having a structural base of noncombustible material, with a surfacing not exceeding a thickness of $^1/_8$ in. (3.2 mm) that has a flame spread rating not greater than 50.
(b) Materials, in the form and thickness used, other than as described in (a), having neither a flame spread rating greater than 25 nor evidence of continued progressive combustion and of such composition that surfaces that would be exposed by cutting through the material on any plane would have neither a flame spread rating greater than 25 nor evidence of continued progressive combustion.
Noncombustible material. A material, as defined in NFPA 220, *Standard on Types of Building Construction*, that, in the form in which it is used and under the conditions anticipated, will not ignite, burn, support combustion, or release flammable vapors when subjected to fire or heat. Materials reported as noncombustible, when tested in accordance with ASTM E 136, *Standard Method of Test for Behavior of Materials in a Vertical Tube Furnace at 750°C*, are considered noncombustible

materials.
Outdoors. Location outside of any building or structure or locations under a roof, weather shelter, or canopy provided this area is not enclosed on more than two sides.
Separate building. A detached, noncommunicating building used exclusively to house a hydrogen system.
Shall. Indicates a mandatory requirement.
Special room. A separate enclosed area that is part of or attached to another building and is used exclusively for a hydrogen system.
Standard. A document, the main text of which contains only mandatory provisions using the word "shall" to indicate requirements and which is in a form generally suitable for mandatory reference by another standard or code or for adoption into law. Nonmandatory provisions shall be located in an appendix, footnote, or fine-print note and are not to be considered a part of the requirements of a standard.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7073 Prohibitions.
Rule 73. Sections 1-4 to 1-4.4 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
Prohibitions.
Any liquefied H_2 storage container system or practice that is not in compliance with these rules shall be considered to be in violation of these rules.
Upon notification by the department, a person shall not deliver liquefied H_2 to a storage container system under any circumstances that are prohibited by these rules or if a container is not in compliance with these rules. Such notification may include a verbal or written communication or an affixed written notification on the H_2 system.
A person shall not tamper with, remove, or disregard written notification affixed to the storage container system.
An owner or operator shall not continue to use a storage container system that is causing a release and shall expeditiously empty the system or the component that is causing the release until the system is repaired or replaced.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7074 Installation application.
Rule 74. Sections 1-5 to 1-5.4 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
1-5 Installation application.
1-5.1 An application for plan review shall be submitted, on a form provided by the department, by the owner or owner's designee on behalf of the owner to the department not less than 30 days before the installation of an H_2 storage container system.
1-5.1.1 The installation application shall include all of the following information:
(a) A plot map showing all of the following within 100 feet (30.5 meters) of any portion from the container system:
(i) The location of the following:
(A) Buildings.
(B) Public roadways.
(C) Railroad mainlines.
(D) Public sidewalks.
(E) Overhead power lines.
The proposed location of the dispensing station.
The location of property lines.
The locations of existing aboveground and underground tanks storing flammable and combustible liquids, and flammable, compressed or liquefied gases.
The location of the point of transfer in relationship to all of the following:
The container.
Buildings.
Public ways.
Outdoor places of public assembly.
Driveways.
Main line railroad track center lines.
The line of adjoining property that may be built upon.
Aboveground and underground tanks storing flammable and combustible liquids and/or flammable, compressed, or liquefied gases.
(b) The construction material, the dimensions and the capacity of each container.
(c) The type of container venting and pressure relief.

(d) The compressor(s) size (psig and scfm).
(e) Container appurtenances.
(f) A piping diagram showing sizes, valves, pressure relief and fittings, and control devices.

Upon acknowledged receipt of the plans, the department shall issue a plan review report within 30 days. If the plan review report is not issued within 30 days, the installation may be constructed according to the submitted plans and shall be in compliance with these rules.

An applicant shall notify the department upon completion of the installation before the installation is placed into service. The department shall inspect the installation after receiving notification and shall certify the installation, if the requirements of the rules are met. If the inspection is not made within 2 working days, then the applicant may place the installation into service, or if intended to be underground, mounded, or partially underground, may cover the installation from sight, and shall notify the department, and shall submit a notarized affidavit to the department attesting to the fact that the installation complies with the installation application submitted and the applicable rules.

Upon the owner's request, all plans and specifications that are submitted to the department for review shall be returned after the department has certified the installation or within 30 working days after notification to the department of the completion of the installation. Plans and specifications may be marked "Confidential—Do Not Copy" at the time they are submitted.

History: 2008 MR 8, Eff. May 1, 2008.

R 29.7075 Installation application fees and annual certification.

Rule 75. Sections 1-6 to 1-6.2 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:

1-6 Installation application fees and annual certification.

1-6.1 Only an owner of an H_2 container system for which an installation application is required to be submitted under section 1-5 of the H_2 code shall be required to pay fees as specified in 1941 PA 207, MCL 29.5.

For the purpose of assessing fees, each liquefied H_2 permanent installation, or any container filling location, shall be considered a container, as defined in section 5 of 1941 PA 207, MCL 29.5.

History: 2008 MR 8, Eff. May 1, 2008.

R 29.7076 Equivalency.

Rule 76. Sections 1-7 to 1-7.3 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:

1-7 Equivalency.

1-7.1 Nothing in this H_2 code shall be intended to prevent the use of systems, methods, or devices having equivalent or superior quality, strength, fire resistance, effectiveness, durability, environmental protection capability, or safety over those prescribed by the H_2 code, if technical documentation is submitted to the department to demonstrate equivalency and the system, method, or device is approved for the intended purpose.

1-7.2 An owner or operator may make an application for a variance of rules by applying to the department with a satisfactory explanation of why compliance is not possible. The department may approve the variance request upon finding that the variance is based upon the best interest of public health, safety, and welfare, and the environment.

A person aggrieved by a final decision of the department on a request for variance or an equivalency determination may appeal to the circuit court within 21 days of receiving the decision.

History: 2008 MR 8, Eff. May 1, 2008.

R 29.7077 Personnel.

Rule 77. Sections 1-8 and 1-8.1 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:

Personnel.

In the interest of safety, all persons involved in handling H_2 shall be trained in the proper handling and operating procedures. This training shall be acceptable to the department.

Exception: This training is not required for a person dispensing H_2 *into a vehicle at an attended self-service facility.*

History: 2008 MR 8, Eff. May 1, 2008.

R 29.7078 Application.

Rule 78. Sections 1-9 to 1-9.4 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:

1-9 Application.

1-9.1 The application of this standard at places of public assembly shall meet the requirements of section 3-2.2(a) and the approval of the department.

This standard does not apply to flow-through process containers.

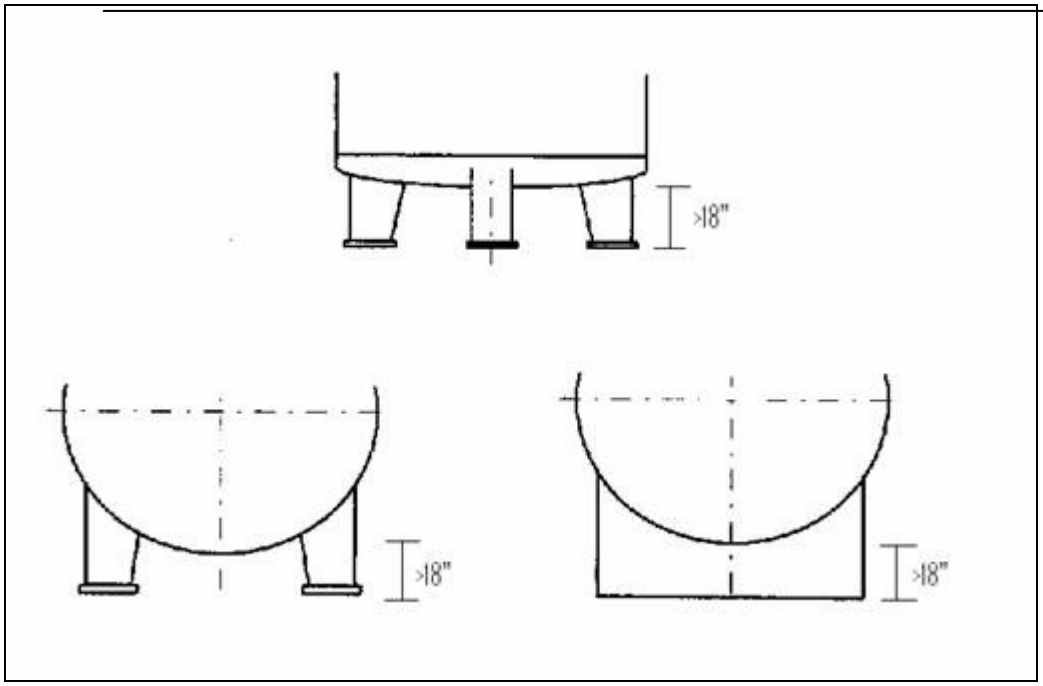
When required by the department, H_2 introduced into any system covered by this code shall have a leak detection system acceptable to the department and based on the best interest of public health, safety, and welfare, and the environment.

Liquefied H_2 in fuel containers on vehicles and mobile equipment shall not be included in determining the maximum allowable quantities.
History: 2008 MR 8, Eff. May 1, 2008.

Chapter 2 Design of liquefied hydrogen systems

R 29.7079 Containers.
Rule 79. Sections 2-1 to 2-1.10.1.3 and figure 2-1.2 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
2-1 Containers.
2-1.1 H_2 containers shall comply with the following.
(a) Storage containers shall be designed, constructed, and tested in accordance with appropriate requirements of the ASME "*Boiler and Pressure Vessel Code*," section VIII, "Rules for the Construction of Pressure Vessels," adopted by reference in section 8-1.
(b) Portable containers shall be designed, constructed, and tested in accordance with title 49 *CFR*.
(c) Welding or brazing for the repair or alteration of an ASME pressure vessel shall comply with the standard adopted in section 8-1.2.1.
(d) Other welding or brazing shall be permitted only on saddle plates, lugs, or brackets which are attached to the pressure vessel by the pressure vessel manufacturer.
(e) The exchange or interchange of pressure vessel appurtenances intended for the same purpose shall not be considered a repair or alteration but must comply with these rules.
2-1.2 Permanently installed containers shall be provided with substantial supports of noncombustible material securely anchored on firm foundations of noncombustible material, and shall comply with the following subsections as applicable:
(a) Steel supports in excess of 18 inches (46 centimeters) in height shall be protected with a protective coating having a 2-hour fire resistance rating, see figure 2-1.2.
(b) If a permanently installed aboveground container is in an area that is subject to buoyant forces, provision shall be made to prevent the container, either full or empty, from floating during a rise in water level, including up to the established maximum flood stage.
(c) Horizontally installed containers shall have not more than 2 points of support longitudinally or other methods approved by the department based on the best interest of public health, safety, and welfare and the environment.
(d) Horizontally installed containers shall not be in direct contact with each other.
(e) Aboveground containers shall be protected by painting or other equivalent means where necessary to inhibit corrosion.
(f) Temperature effects. Foundations or supports that could come in contact with the cryogenic fluid in the event of a spillage, such as at fill connections, and flanges, shall be constructed of materials that are capable of withstanding the cryogenic temperature effects, such as concrete and stainless steel.
(g) Excessive loads. Stationary containers shall be supported to prevent the concentration of excessive loads causing differential settlement of the support system.
(h) Expansion and contraction. Foundations for horizontal containers shall be constructed to accommodate expansion and contraction of the container.
(i) Support of ancillary equipment. Foundations shall be provided to support the weight of ancillary equipment such as vaporizers and/or heat exchangers.

Figure 2-1.2



Marking. Liquefied H_2 containers and systems shall be marked in accordance with this section.
Portable containers. Portable containers shall be marked in accordance with CGA C-7, "*Guide to the Preparation of Precautionary Labeling and Marking of Compressed Gas Containers*," adopted by reference in section 8.
Stationary containers. Stationary containers shall be marked in accordance with NFPA 704, "*Standard Systems for the Identification of the Hazards of Materials for Emergency Response*," adopted by reference in section 8.
Identification of contents. Each container shall be marked as follows:
LIQUEFIED HYDROGEN — FLAMMABLE GAS
in letters that are not less than 3 inches (7.62 centimeters) in height.
Container specification. Stationary containers shall be marked with the manufacturing specification and maximum allowable working pressure on a permanent nameplate in accordance with the standard to which the container was manufactured.
An owner or operator that has had a container subjected to heat exposure due to an engulfing fire, a fire in which at least 25% of the container surface is exposed, shall remove the container from service, and shall not return the container to service, unless the owner or operator provides documentation to substantiate mechanical and performance integrity of the container in accordance with section 2-1.1 to the department. Such documentation shall be issued by a qualified engineer.
Guard posts or other approved means shall be provided to protect a container system subject to vehicular damage. When guard posts are installed, all of the following design specifications shall be met:
Guard posts shall be constructed of steel not less than 4 inches (10.16 centimeters) in diameter and shall be filled with concrete.
Guard posts shall be spaced not more than 4 feet (1.2 meters) on center.
Guard posts shall be set not less than 4 feet (1.2 meters) deep in a concrete footing that is not less than 15 inches (38.1 centimeters) in diameter.
Guard posts shall be not less than 4 feet (1.2 meters) in height above grade.
Other means as approved by the department based on the best interests of public health, safety, and welfare, and the environment.
2-1.6 Physical protection. Containers, piping, valves, pressure-relief devices, regulating equipment, and other appurtenances shall be protected against physical damage and tampering.
Portable containers subject to shifting or upset shall be secured. Nesting shall be permitted as a means of securing portable containers.
Overfill protection and prevention systems. An approved means or method shall be provided to prevent the overfilling of storage containers.
Vacuum level monitoring. An approved monitoring method shall be provided to indicate vacuum degradation within the vacuum jacket(s).
Underground containers. Underground containers for the storage of liquefied H_2 shall be in accordance with this subsection.

Construction. Storage containers for liquefied H_2 shall be designed and constructed in accordance with section VIII of ASME "*Boiler and Pressure Vessel Code*," adopted by reference in section 8, and shall be vacuum-jacketed in accordance with section 2-1.10.1.1.
Vacuum jacket construction. The vacuum jacket shall be designed and constructed in accordance with section VIII of ASME "*Boiler and Pressure Vessel Code,"* and shall be designed to withstand the anticipated loading, including loading from vehicular traffic, where applicable. Portions of the vacuum jacket installed below grade shall be designed to withstand anticipated soil, hydrostatic, and seismic loading.
Material. The vacuum jacket shall be constructed of stainless steel or other approved corrosion-resistant material.
Corrosion protection. The underground container shall be protected by an engineered corrosion protection system designed by a corrosion expert. If cathodic protection is used the maintenance schedule shall meet the requirements of section 5-3.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7080 Pressure relief devices.
Rule 80. Sections 2-2.1 to 2-2.5 are reproduced from NFPA 50B, and sections 2-2.6 to 2-2.16 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
2-2 Pressure relief devices.
2-2.1 Stationary liquefied hydrogen containers shall be equipped with pressure relief devices sized in accordance with CGA S-1.3, *Pressure Relief Device Standards — Part 3 — Compressed Gas Storage Containers*.
2-2.2 Portable liquefied hydrogen containers complying with DOT *Specifications and Regulations* shall be equipped with pressure relief devices as required in DOT *Specifications and Regulations.* Pressure relief devices shall be sized in accordance with the requirements of CGA S-1.1, *Pressure Relief Device Standards — Part 1 — Cylinders for Compressed Gases*, and CGA S-1.2, *Pressure Relief Device Standards — Part 2 — Cargo and Portable Containers for Compressed Gases.*
2-2.3 Pressure relief devices shall be arranged to discharge unobstructed to the outdoors and in such a manner as to prevent impingement of escaping liquid or gas upon the container, adjacent structures, or personnel. *(See 3-1.5 for venting of pressure relief devices in special locations.)*
2-2.4 Pressure relief devices or vent piping shall be designed or located so that moisture cannot collect and freeze in a manner that would interfere with proper operation of the device.
2-2.5 Pressure relief devices shall be provided in piping wherever liquefied hydrogen could be trapped between closures.
2-2.6 Stationary containers shall be provided with a sign, in letters not less than 1 inch (2.54 centimeters) in height, placed in proximity to the primary container pressure relief valve vent stack that warns against spraying water on or into the vent opening.
2-2.7 The pressure-relief device shall have the capacity to prevent the pressure inside the container from exceeding 110% of the maximum design pressure.
H_2 venting systems discharging to the atmosphere shall be in accordance with CGA G-5.5, adopted by reference in section 8.
Components which come in contact with cryogenic H_2 under normal operating conditions shall be suitable for operation at a temperature of -430 degrees Fahrenheit (-236 degrees Celsius).
Individual discharge lines and adapters shall be sized, located, and secured so as to permit the maximum required relief discharge capacity to minimize the possibility of physical damage. The discharge lines shall be able to withstand the pressure of the relief vapor discharge when the relief is in the full-open position.
Secondary relief devices, designed to provide additional relief in emergencies, shall be piped away from the container independently.
2-2.12 Shutoffs between pressure-relief devices and containers. Shutoff valves shall not be installed between pressure-relief devices and containers unless the valves or their use meets the requirements of this section.
2-2.12.1 Security. Shutoff valves shall be of a locking type and their use shall be limited to service-related work performed by the supplier under the requirements of ASME "*Boiler and Pressure Vessel Code*," adopted by reference in section 8.
2-2.12.2 Multiple pressure-relief devices. Shutoff valves controlling multiple pressure-relief devices on a container shall be installed so that either the type of valve installed or the arrangement provides the full required flow through the minimum number of required relief devices at all times.
2-2.13 Safety and relief valves. Pressure relief valves for liquefied H_2 systems, if externally adjustable, shall be provided with a means for sealing the adjustment to prevent tampering.
2-2.13.1 If at any time it is necessary to break such a seal, the valve shall be removed from service until it has been reset and sealed.
2-2.13.2 Adjustments shall be made only by the manufacturer or other organizations having competent personnel and facilities for the repair, adjustment, and testing of such valves.
2-2.13.3 The organization making such adjustment shall attach a permanent tag with the setting, capacity, and date.

The thermal expansion relief valve shall be installed as required to prevent overpressure in any section of a liquid or cold vapor pipeline that can be isolated by valves.
Thermal expansion relief valves shall be set to discharge above the maximum pressure normally expected in the line but less than the rated test pressure of the line it protects.
Discharge from thermal expansion relief valves shall be directed so as to minimize hazard to personnel and other equipment.
Pressure relief valves shall be tested at least every 5 years.
Exception: Thermal relief valves will not be tested.
2-2.16 Heat exchangers, vaporizers, insulation casing surrounding containers, vessels, and coaxial piping systems in which liquefied or cold vapor H_2 could be trapped shall be provided with a pressure-relief device.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7081 Piping, tubing, and fittings.
Rule 81. Sections 2-3.1, and 2-3.4 are reproduced from NFPA 50B, and sections 2-3.2, 2-3.2.1, 2-3.3, 2-3.5, 2-3.5.1, 2-3.6 to 2-3.17 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
2-3 Piping, tubing, and fittings.
2-3.1 Piping, tubing, and fittings, and gasket and thread sealants shall be suitable for hydrogen service at the pressures and temperatures involved. Consideration shall be given to the thermal expansion and contraction of piping systems when exposed to temperature fluctuations of ambient to liquefied hydrogen temperatures.
Material specifications and thickness requirements for piping and tubing shall conform to ASME B31.3, "*Process Piping*." Piping or tubing for operating temperatures below -20 degrees Fahrenheit (-29 degrees Celsius) shall be fabricated from materials meeting the impact test requirements of Chapter III of ASME B31.3 when tested at the minimum operating temperature to which the piping can be subjected in service.
Aluminum shall not be used with liquefied H_2 piping except for ambient air vaporizers.
2-3.3 Joints in piping and tubing shall be made by welding, brazing, or flanged. Brazing materials shall have a melting point above 1,000 degrees Fahrenheit (538 degrees Celsius). Flanged connection shall use a gasket that is suitable for H_2.
2-3.4 Means shall be provided to minimize exposure of personnel to piping operating at low temperatures and to prevent air condensate from contacting piping, structural members, and surfaces not suitable for cryogenic temperatures. Insulation shall be of noncombustible material and shall be designed to have a vaportight seal in the outer covering to prevent the condensation of air and subsequent oxygen enrichment within the insulation. The insulation material and outside shield also shall be of adequate design to prevent attrition of the insulation due to normal operating conditions.
2-3.5 Uninsulated piping and equipment that operate at liquid hydrogen temperatures shall not be installed above asphalt surfaces or other combustible materials to prevent contact of oxygen enriched liquefied air with such materials. Drip pans may be installed under uninsulated piping and equipment to control drips and vaporize condensed liquefied air.
2-3.5.1 Where insulation materials are used, the insulation shall be compatible with the equipment with which the insulation is in contact.
2-3.6 A piping system shall be substantially supported and protected against physical damage and excessive stresses arising from settlement, vibration, expansion, or contraction. Supports for aboveground piping shall be constructed of noncombustible material.
2-3.7 Aboveground piping systems shall be protected from corrosion in compliance with recognized standards. Underground piping system shall be in compliance with section 5-3.
2-3.8 Aboveground piping systems shall be marked in accordance with the following:
(a) Marking shall include the name of the gas and direction of flow arrow.
(b) Marking for piping systems shall be provided at the following locations:
(i) At each critical process control valve.
(ii) At wall, floor, or ceiling penetrations.
(iii) At each change in direction.
(iv) At a minimum of every 20 feet (6.1 meters) or fraction thereof throughout the piping run.
2-3.9 Underground piping shall be installed on a bedding of at least 6 inches (15.24 centimeters) of well-compacted backfill material.
2-3.10 In areas subject to vehicle traffic, the pipe trench shall be of sufficient depth to permit a cover of not less than 18 inches (45.72 centimeters) of well compacted backfill material and pavement.
Exception: In paved areas where a minimum of 8 inches (20.32 centimeters*) of asphalt paving is used, the depth of the backfill between the topmost tier of piping and the paving can be reduced to not less than 8 inches (20.32* centimeters*).*
Exception: In paved areas where a minimum of 6 inches (15.24 centimeters*) of reinforced concrete paving is used, the depth of backfill between the topmost tier of the piping and the paving can be reduced to not less than 4 inches (10.2* centimeters*).*
2-3.11 In areas not subject to vehicle traffic, the pipe trench shall be of sufficient depth to permit 6 inches (15.24 centimeters)

each of bedding and cover of well-compacted backfill material. A greater burial depth shall be provided when required by the manufacturer's instructions.
2-3.12 Piping within the same trench shall be separated by more than 3 times the diameter of the larger adjacent pipe.
Piping to equipment shall be provided with an accessible, manual shutoff valve.
Pipe, tubing, fittings, and other piping components shall be capable of withstanding a hydrostatic test of at least 3 times the rated pressure without structural failure as documented by the manufacturer.
Underground liquefied H_2 piping shall be vacuum-jacketed. Unjacketed piping shall not be buried and shall exit the container annular space above grade.
All natural gas piping shall be installed in accordance with R 29.4601 et seq.
All liquefied petroleum gas piping shall be installed in accordance with R 29.4001 et seq.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7082 Equipment assembly.
Rule 82. Sections 2-4.1 and 2-4.2 are reproduced from NFPA 50B, and sections 2-4.3 to 2-4.8 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
2-4 Equipment assembly.
2-4.1 Valves, gauges, regulators, and other accessories shall be suitable for liquefied hydrogen service and for the pressures and temperatures involved.
2-4.2 Installation of liquefied hydrogen systems shall be supervised by personnel familiar with proper installation practices and with their construction and use.
Aboveground containers, piping, valves, regulating equipment, and other accessories shall be readily accessible and shall be protected against physical damage and against tampering.
An automatic emergency shutoff valve shall be located in liquid product withdrawal lines as close to the container as practical.
The automatic shutoff valve shall be provided with a remotely located, manually activated, shutdown control.
The shutoff valve shall be connected to the storage container by means of welded connections without the use of flanges, or other appurtenances except that a manual shutoff valve equipped with welded connections is allowed to be installed immediately upstream of the automatic shutoff valve to allow for maintenance of the automatic valve.
Connections downstream of the shutoff valve shall be in accordance with ASME B31.3, *"Process Piping,"* adopted by reference in section 8.
Cabinets or enclosures containing H_2 control equipment shall be ventilated to prevent any accumulations of H_2 gas.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7083 Testing.
Rule 83. Sections 2-5 and 2-5.1 are reproduced from NFPA 50B, and section 2-5.2 of the storage and handling of gaseous and Liquefied H_2 code is added as follows:
2-5 Testing.
2-5.1 After installation, all field-erected piping shall be tested and proved hydrogen gas-tight at operating pressure and temperature.
2-5.2 Containers, if out-of-service in excess of 1 year, shall be inspected and tested as outlined in 2-5.1. The pressure relief devices shall be checked to determine if they are operable, properly set, and within test service dates as per section 2-2.15.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7084 Liquefied H_2 vaporizers.
Rule 84. Sections 2-6.1 to 2-6.4 are reproduced from NFPA 50B, and sections 2-6.5 to 2-6.13 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
2-6 Liquefied H_2 vaporizers.
2-6.1 The vaporizer shall be anchored and its connecting piping shall be sufficiently flexible to provide for the effect of expansion and contraction due to temperature changes.
2-6.2 The vaporizer and its piping shall be protected on the hydrogen and heating media sections with pressure relief devices.
2-6.3 Heat used in a liquefied hydrogen vaporizer shall be indirectly supplied utilizing media such as air, steam, water, or water solutions.
2-6.4 A low-temperature shutoff switch or valve shall be provided in the vaporizer discharge piping to prevent flow of liquefied hydrogen in the event of the loss of the heat source.
Vaporizers shall be designed for a working pressure at least equal to the maximum discharge pressure of the pump or the pressurized system that supplies them, whichever is greater.

The discharge valve of each vaporizer, if provided, its piping components, the relief valves installed upstream of the discharge valve, the vaporizer piping, and related components shall be suitable for operation at a liquefied H_2 temperature of -423 degrees Fahrenheit (217.2 degrees Celsius).
Multiple vaporizers shall be manifolded such that both inlet and discharge block valves are installed on each vaporizer.
A low temperature switch or other accepted means shall be installed on the vaporizer discharge to eliminate the possibility of cryogenic H_2 entering gaseous H_2 containers and other equipment not designed for cryogenic H_2 temperatures.
Relief valves on heated vaporizers shall be located so that they are not subjected to temperatures exceeding 140 degrees Fahrenheit (60 degrees Celsius) during normal operation unless they are designed to withstand higher temperatures.
The combustion air required for the operation of integral heated vaporizers or the primary heat source for remote heated vaporizers shall be taken from outside an enclosed structure or building.
Installation of internal combustion engines or gas turbines shall conform to R 29.5101 et seq.
Securing of vaporizers. Vaporizers, heat exchangers, and similar equipment shall be secured to foundations, and their connecting piping shall be flexible to provide for the effects of expansion and contraction due to temperature changes.
Vaporizers and heaters shall be provided with instrumentation to monitor outlet temperatures.
Exception: Ambient pressure-building coil vaporizers that are fed with liquid from, and return vapor to, a container.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7085 Electrical systems.
Rule 85. Sections 2-7 to 2-7.2 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
2-7 Electrical systems.
2-7.1 Electrical equipment and wiring shall be specified and installed in accordance with NFPA 70, "*National Electrical Code*," adopted by reference in section 8.
Static protection shall be required when liquefied H_2 cargo transport vehicles are loaded or unloaded. This can be achieved when cargo transport vehicles or marine equipment are loaded or unloaded by grounding cable, conductive hose, flexible metallic tubing, or pipe connections where both halves of metallic couplings are in contact.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7086 Bonding and grounding.
Rule 86. Section 2-8 is reproduced from NFPA 50B as follows:
2-8 Bonding and grounding. The liquefied hydrogen container and associated piping shall be electrically bonded and grounded.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7087 Approval.
Rule 87. Sections 2-9 and 2-9.1 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
2-9 Approval.
Systems and all system components shall be listed or approved, including, but not limited to all of the following:
A container.
A pressure relief device, including a pressure relief valve.
A pressure gauge.
A pressure regulator.
A valve.
(f) A vaporizer.
(g) A hose and hose connection.
(h) A vehicle fueling connection.
(i) Electrical equipment related to the H_2 system.
(j) A dispenser.
(k) Emergency shutoff valves.
(l) Metal hydride storage.
(m) Gas detection equipment and alarms.
H_2 generators.
Pumps or compressors.
Stationary engine fuel system.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7088 Pressure gauges.

Rule 88. Sections 2-10 to 2-10.2 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
Pressure gauges.
A pressure gauge, if provided, shall be capable of reading at least 1.2 times the system MAWP.
Pressure gauges shall be installed on each pump and compressor discharge.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7089 Pressure regulators.
Rule 89. Sections 2-11 to 2-11.3 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
2-11 Pressure regulators.
2-11.1 A pressure regulator inlet and each chamber shall be designed for its service pressure with a safety factor of at least 3.
2-11.2 Pressure chambers shall provide for overpressure relief, if required.
2-11.3 Regulators shall be designed, installed, or protected so that their operation is not affected by freezing rain, sleet, snow, ice, mud, insects, or debris. Regulator protection shall be permitted to be integral with the regulator.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7090 Valves.
Rule 90. Sections 2-12 to 2-12.2 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
2-12 Valves.
2-12.1 Shutoff valves shall have a rated service pressure not less than the rated service pressure of the entire system and shall be capable of withstanding a hydrostatic test of at least 3 times the rated service pressure without rupture.
2-12.1.1 Leakage shall not occur when tested at least 1.1 times the rated service pressure, using an inert gas compatible with industry practices.
2-12.2 Valves of a design that allows the valve stem to be removed without removal of the complete valve bonnet or without disassembly of the valve body shall not be used.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7091 Hose and hose connections.
Rule 91. Sections 2-13 to 2-13.6 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
2-13 Hose and hose connections.
2-13.1 Hose shall be constructed of or lined with materials that are resistant to corrosion and compatible with H_2.
2-13.2 Hose, metallic hose, flexible metal hose, tubing, and their connections shall be designed for the most severe pressures and temperatures expected under normal operating conditions with a burst pressure of at least 3 times the service pressure.
2-13.3 Prior to use, hose assemblies shall be tested by the manufacturer or its designated representative at a pressure at least 1.1 times the service pressure.
Hose and metallic hose shall be distinctly marked by the manufacturer either by the manufacturer's permanently attached tag or by distinct markings indicating the manufacturer's name or trademark, applicable service identifier and design pressure.
The use of hose in an installation shall be limited to the following:
Vehicle fueling hose.
Inlet connection to compression equipment.
Section of metallic hose not exceeding 36 inches (1 meter) in length in the pipeline to provide flexibility where necessary.
Transfer hoses for connecting the mobile supply equipment to a local storage system.
2-13.6 Each section shall be so installed that it is protected against mechanical damage and is readily visible for inspection.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7092 Vehicle fueling connection.
Rule 92. Sections 2-14 to 2-14.2 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
2-14 Vehicle fueling connection.
2-14.1 Fueling receptacles and nozzles for liquefied H_2 service shall be in accordance with a standard acceptable to the department based on the best interest of public health, safety, and welfare, and the environment.
2-14.2 The use of adapters shall be prohibited.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7093 Stationary pumps and compressors.
Rule 93. Sections 2-15 to 2-15.5 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
2-15 Stationary pumps and compressors.
Valves shall be installed such that each pump or compressor can be isolated for maintenance. Where pumps or centrifugal

compressors are installed for operation in parallel, each discharge line shall be equipped with a check valve to prevent the backflow of liquid from 1 system to the other.
Foundations for cryogenic pumps or compressors shall be designed and constructed to prevent frost heaving.
Operation of all pumps and compressors shall cease when the facility's emergency shutdown device (ESD) system is initiated.
Each pump shall be provided with an adequate vent or relief valve that will prevent over pressurizing of the pump case under normal conditions including the maximum possible rate of cool down.
Vents shall be piped outside of buildings to a point of safe discharge.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7094 Liquefied H_2 to gaseous H_2 systems.
Rule 94. Sections 2-16 to 2-16.4 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
Liquefied H_2 to gaseous H_2 systems.
Section 2-16 shall apply to the design, construction, installation, and operation of equipment used to produce gaseous H_2 from liquefied H_2.
Gaseous H_2 storage containers and equipment located downstream of liquefied H_2 containers are not regulated by section 2-16. Gaseous H_2 storage containers and equipment shall comply with part 2 of these rules.
In addition to the emergency shutdown systems described in section 7-6, the emergency shutdown system shall also shut off the liquid supply and power to the liquefied H_2 transfer equipment necessary for producing gaseous H_2 from liquefied H_2.
Transfer piping, pumps, and compressors shall be protected from vehicle collision damage and shall comply with section 2-1.5.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7095 Temporary installations.
Rule 95. Sections 2-17 and 2-17.1 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
2-17 Temporary installations.
2-17.1 ASME or U.S. DOT containers that are used as portable storage containers, see definition of portable container in section 1-5, for temporary, less than 6 months at any given location, stationary service shall comply with the following:
(a) If mounted on legs or supports, then such supports shall be of steel and either shall be welded to the container by the manufacturer at the time of fabrication or shall be attached to lugs that have been so welded to the container. The legs or supports or the lugs for the attachment of these legs or supports shall be secured to the container in accordance with the code or rule under which the container was designed and built, to withstand loading in any direction equal to twice the weight of the empty container and attachments.
(b) If the container is mounted on a trailer or semitrailer running gear so that the unit can be moved by a conventional over-the-road tractor, then attachment to the vehicle, or attachments to the container to make it a vehicle, shall comply with the appropriate U.S. DOT requirements for cargo tank service. The unit also shall comply with applicable state and U.S. DOT motor carrier regulations and shall be approved by the department.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7096 Indoor fueling.
Rule 96. Section 2-18 of the storage and handling of gaseous and Liquefied H_2 code is added as follows:
2-18 Indoor fueling. Indoor fueling of liquefied H_2 is not permitted unless department approved.
History: 2008 MR 8, Eff. May 1, 2008.

Chapter 3 Location of liquefied hydrogen systems

R 29.7097 General requirements.
Rule 97. Sections 3-1.1 and 3-1.3 to 3-1.5 are reproduced from NFPA 50B, and sections 3-1.2, 3-1.6 to 3-1.13 of the storage and handling of gaseous and Liquefied H_2 code is added as follows:
3-1 General requirements.
3-1.1 The storage containers shall be located so that they are readily accessible to mobile supply equipment at ground level and to authorized personnel. Roadways or other means of access for emergency equipment, such as fire department apparatus, shall be provided.
3-1.2 Systems shall not be located beneath or where exposed by failure of the following:
(a) Electric power lines as follows:
(i) Not less than 50 feet (15.2 meters) horizontally from the vertical plane below the nearest overhead wire of an

electric trolley, train, or bus line.
(ii) Not less than 5 feet (1.5 meters) horizontally from the vertical plane below the nearest overhead electrical wire.
(b) Piping containing all classes of flammable and combustible liquids
(c) Piping containing oxidizing materials
3-1.3 Where a liquefied hydrogen container is installed on ground that is level with or lower than the adjacent storage of all classes of flammable and combustible liquid or liquid oxygen, suitable protective means shall be taken to prevent accumulation of liquids within 50 ft (15.2 m) of the liquefied hydrogen container. Protective means shall include diking, diversion curbs, or grading of the flammable and combustible liquid storage or liquid oxygen storage.
3-1.4 Storage sites shall be fenced and posted to prevent entrance by unauthorized personnel. Sites also shall be placarded as follows:
LIQUEFIED HYDROGEN FLAMMABLE GAS
NO SMOKING — NO OPEN FLAMES
3-1.5 If liquefied hydrogen is located (as specified in table 3-2.1) in a separate building, in a special room, or inside buildings where not in a special room or exposed to other occupancies, containers shall have the pressure relief devices vented unobstructed to the outdoors at a minimum elevation of 25 ft (7.6 m) above grade to a safe location as required in 2-2.3.
Underground systems shall be located underground, mounded, or partially buried and outside of any buildings. Buildings shall not be constructed over any underground, mounded, or partially buried container. Sides of adjacent containers shall be separated by not less than 3 feet (1 meter).
(a) Excavation for underground, mounded, or partially buried containers shall be made with due care to avoid damage to an existing structure or its foundation. Containers shall not be installed where loads from adjacent structures may be transmitted to the container. A structure or foundation of a structure on the same property shall not be erected or constructed within 10 feet (3.1 meters) of any point on the container surface, unless the footings extend to the bottom of the container. A container shall not be installed less than 10 feet (3.1 meters) from the nearest wall of any basement, pit, or property line.
All underground containers shall be set on firm foundation and surrounded with 6 inches (15.24 centimeters) minimum of noncorrosive inert material such as clean sand or pea gravel.
Underground or mounded containers shall be covered with not less than 2 feet (60.96 centimeters) of earth or with not less than 1 foot (30.48 centimeters) of earth on top of which shall be placed a reinforced concrete slab not less than 4 inches (10.16 centimeters) thick. If containers are likely to be subjected to traffic, they shall be protected against damage from vehicles passing over them by at least 3 feet (1 meter) of earth cover plus 6 inches (15.24 centimeters) of reinforced concrete. When reinforced concrete paving is used as part of the protection, it shall extend at least 1 foot (30.48 centimeters) horizontally beyond the outline of the container in all directions.
(a) The vertical extension of the vacuum jacket required for service connections shall be allowed to extend above grade.
Containers installed in an area subject to flooding, high water table, or other buoyant forces shall be safeguarded from movement by anchoring or other means acceptable to the department based on the best interests of public health, safety, and welfare and the environment.
Where a liquefied H_2 container is installed on ground that is level with or lower than the adjacent storage of all classes of flammable and combustible liquid or liquid oxygen, suitable protective means shall be taken to prevent accumulation of liquids within 50 feet (15.2 meters) of the liquefied H_2 container. Protective means shall include diking, diversion curbs, or grading of the flammable and combustible liquid storage or liquid oxygen storage.
Aboveground liquefied H_2 systems shall be fenced and posted to prevent entrance by unauthorized personnel.
Exception: Liquefied H_2 *dispensers may be located outside the fence.*
Underground installations shall be deemed to provide engineered protection from overhead power lines.
3-1.13 Venting of underground containers. Venting systems for underground storage containers shall be in accordance with CGA G-5.5, adopted by reference in section 8.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7098 Specific requirements.
Rule 98. Sections 3-2.1, 3-2.4 and table 3-2.1 are reproduced from NFPA 50B, and sections 3-2.2, 3-2.2.1, 3-2.3, 3-2.5 to 3-2.8 and table 3-2.2 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
3-2 Specific requirements.
3-2.1 The location of liquefied hydrogen storage, as determined by the maximum total quantity of liquefied hydrogen, shall be in the order of preference indicated by the Roman numerals in table 3-2.1.

Table 3-2.1
Preferred Locations of Liquefied Hydrogen Systems

Nature of Location	Size of Hydrogen Storage			
	39.63 gal to 50 gal (150 L to 189.25 L)	51 gal to 300 gal (193.03 L to 1135.5 L)	301 gal to 600 gal (1139.29 L to 2271 L)	In excess of 600 gal (2271 L)
Outdoors	I	I	I	I
In a separate building	II	II	II	Not permitted
In a special room	III	III	Not permitted	Not permitted
Inside buildings Not in a special room or exposed to other occupancies	IV	Not permitted	Not permitted	Not permitted

3-2.2 The minimum distance in feet from liquefied H_2 systems of indicated storage capacity located either outdoors, in a separate building, or in a special room to any specified exposure shall be in accordance with table 3-2.2.
Exception: The distances in numbers 1, 4, 6, 7, 8, and 11 in table 3-2.2 may be reduced by 2/3, but not to less than 5 feet (1.5 meters), for insulated portions of the systems. For uninsulated portions of the system, the distances may be reduced by the use of protective structures having a minimum fire resistance rating of 2 hours. The protective structure or the insulated liquefied H_2 *container shall interrupt the line of sight between uninsulated portions of the liquefied* H_2 *storage system and the exposure.*
(a) An aboveground H_2 storage container system shall be erected per table 3-2.2 but not less than 75 feet (22.9 meters) from any of the following:
(i) A school.
(ii) A church.
(iii) A hospital.
(iv) A theater.
(v) Assembly occupancy for 50 or more persons.
Exception: The restrictions in section 3-2.2(a) shall not apply to an aboveground H_2 *system used exclusively for stationary power generation.*
Loose or piled combustible materials and weeds and long dried grass shall not be permitted within 10 feet (3.1 meters) of any system.

Table 3-2.2
Minimum Distance from Liquefied Hydrogen Systems to Exposures

Type of Exposure	Total Liquefied H_2 Storage		
	39.63 gal to 3,500 gal (ft)	3,501 gal to 15,000 gal (ft)	15,001 gal to 75,000 gal (ft)
1. Building or structure (a) Wall(s) adjacent to system constructed of non-combustible or limited-combustible materials (1)Sprinklered building or structure or unsprinklered building or structure having noncombustible contents	5[a]	5[a]	5[a]
(2) Unsprinklered building or structure with combustible contents. Adjacent wall(s) with fire resistance rating less than 3 hours[b]	25	50	75
Adjacent wall(s) with fire resistance rating of 3 hours or greater[b]	5	5	5
(b) Wall(s) adjacent to system constructed of combustible materials (1) Sprinklered building or structure	50	50	50
(2) Unsprinklered building or structure	50	75	100
2. Wall openings (a) Openable	75	75	75

(b) Unopenable	25	50	50
3. Air compressor intakes or inlets for air-conditioning or ventilating equipment	75	75	75
4. All classes of flammable and combustible liquid containers (above ground, and vent or fill openings if below ground) *(see 3-1.3)*[c]	50	75	100
5. Between stationary liquefied H_2 containers	5	5	5
6. Flammable gas storage other than H_2	50	75	75
7. Liquid oxygen storage and other oxidizers *(see 3-1.3)*	75	75	75
8. Combustible solids	50	75	100
9. Open flames and welding	50	50	50
10. Places of public assembly for 50 or more persons	75	75	75
11. Public ways, railroads, and property lines	25	50	75
12. Inlet to underground sewers	10	10	10
13. Places of public assembly less than 50 people	25	50	50
14. Flammable/Combustible liquid dispenser other than H_2	10	10	10
For SI units: 1 ft = 0.305 m; 1 gal = 3.785 L. a Portions of wall less than 10 ft (3 m) (measured horizontally) from any part of a system shall have a fire resistance rating of at least 1/2 hour. b Exclusive of windows and doors. c Distances can be reduced to 15 ft (4.6 m) for class IIIB combustible liquids.			

3-2.3 Cargo transport unloading. Unloading connections on delivery equipment shall not be positioned closer to any of the exposures cited in table 3-2.2 than the distances given for the storage system. The following shall apply:

(a) For stationary container system installations or stationary multiple container systems utilizing a common or manifolded transfer line, or railroad tank car transfer systems to fill trucks with no stationary storage involved shall comply with all of the following:

(i) Owners and operators shall ensure that fixed piping is used between the container and master shutoff and check valves. The piping and manifolds shall be secured to the container frame. Flexible hoses are permitted between the check valve and the cargo vehicle unloading connection.

Exception: Bulkheads will be located at a minimum of 1.5 feet (45.72 centimeters*) when crash protection is provided at 10 feet (3.1 meters) from storage container*.

(ii) Emergency shutoff valves required in this section shall be tested annually for proper operation. The results of the tests shall be documented.

(iii) All installations shall have at least 1 clearly identified and easily accessible manually operated remote emergency shutoff device. Within 1 year after the effective date of these rules, existing installations shall have at least 1 clearly identified and easily accessible manually operated remote emergency shutoff device. The emergency shutoff device shall be located not less than 20 feet (6.1 meters) nor more than 100 feet (30.5 meters) in the path of egress from the emergency shutoff valve and not less than 20 feet (6.1 meters) from the container system.

(iv) During transfer of H_2 to and from cargo vehicles, the hand or emergency brake of the vehicle shall be set, and chock blocks shall be used to prevent rolling of the vehicle.

(v) Transfer systems shall be capable of depressurizing to facilitate disconnection. Bleed connections shall lead to a safe point of discharge.

(vi) Cargo vehicle shall be equipped with air-brake interlock in front of the unloading connection to protect against drive-away.

(b) The delivery vehicle shall be located so that all parts of the vehicle are on the premises when delivery is made, and shall comply with all of the following:

(i) Vent connections shall be provided so that loading arms and hoses can be depressurized and vented prior to disconnection if necessary. The connections for liquefied H_2 shall be piped to a vent stack in accordance with part 2, section 2-2.2.

(ii) When transfers are made into fueling facility containers, the liquefied H_2 shall be transferred at a pressure that shall not over-pressurize the receiving container.

(iii) The transfer piping shall be equipped with a check valve to prevent backflow from the container being filled to the transport vehicle. Check valve shall be located as close as practicable to the container.

(iv) If the fueling facility container or transfer equipment is located in a remote area relative to the delivery vehicle operating status indicators, that is those that indicate container level, these container status indicators shall be provided in the unloading

area.
(v) At least 1 qualified person shall be in continuous attendance and shall have an unobstructed view of the transfer point while unloading is in progress.
(vi) Sources of ignition shall not be permitted in the unloading area while transfer is in progress.
(vii) The cargo transport vehicle's engine shall be shut off while the transfer hose or piping is being connected or disconnected. If required for liquefied H_2 trailer pumping transfer, the engine pump drive motor may be started and used during the liquid transfer operations.
3-2.4 The minimum distance of container fill connections from parked vehicles shall be 25 ft (7.6 m).
3-2.5 An owner and operator shall ensure that ~~a~~ container systems are properly designed and constructed in accordance with the ASME and that any portion, which is underground, mounded, or partially underground, is protected from corrosion by either of the following:
(a) The ASME approved container system is cathodically protected by all the following requirements:
(i) The ASME approved container system is coated with a suitable dielectric material approved by the department.
(ii) Factory-installed or field-installed cathodic protection systems are designed by a corrosion expert or in accordance with the NACE recommended practice RP0285 entitled *"Corrosion Control of Underground Storage Tank Systems by Cathodic Protection"* or impressed current systems are designed to allow a determination of current operating status as required in section 5.4-1 of the H_2 code.
(iii) Cathodic protection systems are operated and maintained in accordance with the provisions of section 5.4-1 of the H_2 code.
(b) Other methods as approved by the department and in the best interest of public health, safety, and welfare, and the environment.
3-2.6 Out-of-service aboveground containers.
3-2.6.1 Containers that are no longer in service for a period of 12 months shall be closed. To close the aboveground container, the owner or operator shall empty the container, purge it with an inert gas and safeguard it against tampering. Piping that is removed from service shall be purged with an inert gas and capped or removed.
3-2.6.2 Each container that is to be reused at the original location or a new location shall be purged with an inert gas and be in compliance with all the requirements for the installation of a new container, and shall be recertified by the manufacturer, or authorized representative, and tested in accordance with the container's design specifications or be pressure tested with an inert gas or H_2 at 1.1 times the MOP for not less than 10 minutes. Piping that is to be reused shall be in compliance with all the requirements for the installation of new piping and shall be tested in compliance with section 3-2.8 of this code prior to being brought back into service.
3-2.7 Out-of-service underground, mounded, and partially buried containers.
3-2.7.1 Containers that are no longer used to store H_2 and are not intended to be brought back into service shall be permanently closed. To permanently close the container, the container shall be emptied and purged with an inert gas to render the container free of H_2, and then the container shall be removed from the ground. When a structure above or near the container prevents removal, the container shall be emptied and purged with an inert gas to render the container free of H_2, then the container shall be filled with an inert solid material. Piping that is permanently removed from service shall be purged with an inert gas and capped or removed.
3-2.7.2 Containers may be rendered temporarily out-of-service only when it is intended they be brought back into service at a later date. To temporarily close a container, all of the following requirements shall be met:
(a) The container shall be emptied and purged with an inert gas.
(b) Corrosion protection for the container and all underground piping shall be maintained in compliance with section 5-4.1 of this code.
(c) The vent line shall remain functional.
(d) The container shall be secured against tampering.
(e) Piping that is temporarily removed from service shall be purged with an inert gas and capped.
3-2.7.2.1 Each container that is temporarily out-of-service greater than 12 months shall be pressure tested with an inert gas at 1.1 times the MOP for not less than 10 minutes prior to being brought back into service. Temporarily out-of-service piping shall be tested in compliance with section 3-2.8 of this code prior to being brought back into service.
3-2.8 Testing. After installation, prior to being placed into service, all container connections, piping, tubing, hose, and hose assemblies shall be tested by an approved method as outlined in ASME B31.3 *"Process Piping,"* adopted by reference in section 8, or by a method acceptable to the department based on the best interest of public health, safety, and welfare, and the environment.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7099 Handling of liquefied H_2 inside buildings other than separate buildings and special rooms.

Rule 99. Sections 3-3 and 3-3.1 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
Handling of liquefied H_2 inside buildings other than separate buildings and special rooms.
3-3.1 Portable liquefied H_2 containers of 50-gallons (189-Liters) or less capacity as permitted in Table 3-2.1 and in compliance with section 3-1.5 where housed inside buildings not located in a special room and exposed to other occupancies shall comply with the following minimum requirements.
(a) Containers shall be located 20 feet (6.1 meters) from all classes of flammable and combustible liquids and readily combustible materials such as excelsior or paper.
(b) Containers shall be located 15 feet (4.6 meters) from ordinary electrical equipment, and 25 feet (7.6 meters) from open flames, welding or other sources on ignition.
(c) Containers shall be located 50 feet (15 meters) from storage of oxidizing gases.
(d) Containers shall be protected against damage or injury due to falling objects or work activity in the area.
(e) Containers shall be firmly secured and stored in an upright position and protected against damage in accordance with the provisions of section 2-1.7.
(f) Pressure relief devices on the containers shall be vented directly outdoors or to a hood that is suitable for flammable and combustible vapors.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7100 Location of dispensing operations and equipment.
Rule 100. Sections 3-4 to 3-4.4 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
Location of dispensing operations and equipment.
Dispensing equipment located outdoors shall be in accordance with the following:
Dispensing equipment shall be allowed under weather protection in accordance with the requirements of section 4-5 and constructed in a manner that prevents the accumulation of H_2 gas.
Dispensing equipment shall not be beneath electric power lines or where exposed by their failure, and shall be a minimum of 10 feet (3.1 meters) from the nearest important building or property line or 20 feet (6.2 meters) from any activity that involves a fixed source of ignition.
Dispensing equipment shall be located so that all parts of the vehicle being served are on the premises of the motor fuel dispensing facility.
Dispensing equipment shall be protected against collision damage by means acceptable to the department. Dispensing devices shall be securely bolted in place. Dispensing devices shall be installed in accordance with manufacturer's instructions.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7101 Installation of emergency shutdown equipment.
Rule 101. Sections 3-5 to 3-5.2 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
Installation of emergency shutdown equipment.
Breakaway protection shall be provided in a manner such that, if a pullaway event occurs, liquefied H_2 will cease to flow at any separation.
A breakaway device shall be installed at every dispensing point. Such a device shall be arranged to separate by a force not greater than 150 pounds (75 kilograms), when applied in any direction that the vehicle would move. Breakaway devices shall be compatible with a standard acceptable to the department.
History: 2008 MR 8, Eff. May 1, 2008.

Chapter 4 Design considerations at specific locations

R 29.7102 Outdoor locations.
Rule 102. Sections 4-1 to 4-1.4 are reproduced from NFPA 50B as follows:
4-1 Outdoor locations.
4-1.1 Roadways and yard surfaces located below liquefied hydrogen piping as well as areas under the fill connections and delivery vehicle's uninsulated hydrogen piping from which liquid air can drip shall be constructed of noncombustible materials. For the purposes of this standard, asphaltic and bitumastic paving shall be considered combustible. If expansion joints are used, fillers also shall be of noncombustible materials.
4-1.2 If walls, roofs, weather shelters, or canopies are provided, they shall be constructed of noncombustible or limited-combustible materials.
4-1.3 Electrical wiring and equipment shall comply with section 2-7.
4-1.4 Lighting shall be provided for nighttime transfer operation.

History: 2008 MR 8, Eff. May 1, 2008.

R 29.7103 Specific requirements.

Rule 103. Sections 4-2 to 4-2.2.3 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:

4-2 Specific requirements.

The location of liquefied H_2 storage, as determined by the maximum total quantity of liquefied H_2, shall be in accordance with table 3-2.1.

Installation of liquefied H_2 inside buildings other than detached buildings and gas rooms.

4-2.2.1 More than 1 system of 50 gallons (189.5 liters) or less capacity may be installed in the same room or area outside of special rooms located as allowed in table 3-2.1 and in compliance with section 4-2.1, provided the systems are separated by at least 50 feet (50.2 meters) or by a full height fire-resistive partition having a minimum fire resistance rating of 2 hours is located between the systems.

The separation distance between multiple systems of 50 gallons (189.5 liters) or less may be reduced to 25 feet (7.6 meters) in buildings where the space between storage areas is free of combustible materials and protected with a sprinkler system.

When sprinkler protection is provided, the area in which the H_2 is stored or used shall be protected with a sprinkler system designed to be not less than that required by NFPA 13 for extra hazard group 1 with a minimum design area of 2,500 square feet (762 square meters).

History: 2008 MR 8, Eff. May 1, 2008.

R 29.7104 Separate buildings.

Rule 104. Sections 4-3 to 4-3.5 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:

4-3 Separate buildings.

4-3.1 Separate buildings containing more than 300 gallons (1137 liters) of liquefied H_2 shall be constructed of noncombustible or limited-combustible materials on a substantial frame. Walls and roofs shall be lightly fastened. All venting elements shall be designed to relieve at a maximum pressure of 25 pounds/square foot. Doors shall be located in such a manner that they are readily accessible to personnel in an emergency.

Exception: Window glazing may be of plastic.

Exception: Explosion venting shall be in accordance with section 4-4.3.

Ventilation to the outdoors shall be provided. Inlet openings shall be located within 18 inches (45.72 centimeters) of the floor in exterior walls only. Outlet openings shall be located at the high point of the room in exterior walls or roof. Both the inlet and outlet vent openings shall have a minimum total area of 1 square foot/1000 cubic foot (0.3 square meters/305 cubic meters) of room volume. Discharge from outlet openings shall be directed or conducted to a location that allows for dissipation of the exhaust air in the ambient surroundings away from air intakes and occupied spaces.

4-3.3 There shall be no sources of ignition within the room or area where the H_2 system is installed.

4-3.4 Electrical wiring and equipment shall comply with section 2-7.

Exception: All electrical wiring and equipment in the separate building shall be class I, division 2, group B.

4-3.5 Heating, if provided, shall be by indirect means such as steam or hot water.

Exception: Electrical heating shall be in accordance with section 4-3.4.

History: 2008 MR 8, Eff. May 1, 2008.

R 29.7105 Special rooms.

Rule 105. Sections 4-4 to 4-4.9.1, and table 4-4.9 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:

4-4 Special rooms.

4-4.1 Floors, walls, and ceiling shall be constructed of noncombustible or limited-combustible materials. Interior walls or partitions shall have a fire resistance rating of at least 2 hours, shall be continuous from floor to ceiling, and shall be securely anchored. At least 1 wall shall be an exterior wall. Windows and doors shall be located so as to be readily accessible in case of emergency.

Exception: Window glazing may be of plastic.

Access from within the primary structure shall be made through 1 vapor-sealing, 2 hour, self-closing fire door.

4-4.2 Ventilation shall be provided as in section 4-4.3.

4-4.3 Deflagration venting shall be provided in exterior walls or roof only.

4-4.3.1 Vents shall be any 1 or any combination of the following:

(a) Walls of light material.

(b) Lightly fastened hatch covers.

(c) Lightly fastened, outward opening doors in exterior walls.

(d) Lightly fastened walls or roof.
(e) Other methods in accordance with NFPA 69, adopted by reference in section 8.
Where applicable, snow loads shall be considered.
4-4.3.3 The venting area shall be equal to not less than 1 cubic foot/30 cubic feet (1 cubic meter/9 cubic meters) of room volume.
4-4.4 There shall be no sources of ignition.
4-4.5 Electrical wiring and equipment shall comply with section 2-7, except that all electrical wiring and equipment in the special room shall be class I, division 2, group B.
4-4.6 Heating, if provided, shall be by steam, hot water, or other indirect means.
Exception: Electrical heating shall be in accordance with section 4-4.5.
4-4.7 Room ventilation.
4-4.7.1 The ventilation shall be at least 1 cubic foot/minute/square foot of room area, but not less than 1 cubic foot/minute/12 cubic feet of room volume and shall be designed such that an accumulation of H_2 at a concentration equal to or greater than 25% of the lower flammable limit shall not occur in any part of the room.
4-4.7.2 Ventilation shall be by a continuous mechanical ventilation system or by a mechanical ventilation system activated by a continuously monitoring H_2 detection system where a gas concentration of not more than 25% of the lower flammable limit is present.
4-4.7.3 Where installed, a gas detection system shall be equipped to sound an alarm and visually indicate when a maximum of 25% of the lower flammable limit is reached.
Any failure of the ventilation system shall immediately shut down the fueling system and provide notification to the system operator. Reactivation of the fueling system shall be by manual restart and shall be conducted by trained personnel.
The gas detection system shall function during ventilation system maintenance operations.
A ventilation system for a room within or attached to another building shall be designed to ensure that all areas serviced by the ventilation system meeting performance requirements in accordance with section 4-4.7 during the normal operating conditions and during alarm conditions.
Warning signs.
Access doors shall have warning signs with the words "WARNING – NO SMOKING – NONORDORIZED FLAMMABLE GAS - CRYOGENIC LIQUID – COLD GAS – NO OPEN FLAMES." The wording shall be in plainly legible, bright red letters not less than 1 inch (2.54 centimeters) high on a white background.
Indoor attended gaseous H_2 fast-fill fueling.
4-4.9.1 Attended indoor fast-fill fueling system shall be in accordance with subsections (a) to (k) of this section.
(a) Gas storage equipment shall be located outdoors unless approved by the department. Gas processing and compression equipment shall be listed or approved for indoor use or located outdoors.
(b) An emergency manual shutdown device shall be located in the dispensing area not less than 20 feet (6.1 meters) and not more than 100 feet (30.5 meters) in the path of egress from the dispensing area. Actuation of the emergency manual shutdown device shall perform in accordance with subsection (h) of this section.
(c) The dispenser shall be equipped with a gas detection system which shall actuate in accordance with subsection (h) of this section when a maximum of 25% of LFL is detected (1% H_2 in air).
(d) The dispenser shall be equipped with a leak detection system capable of identifying a leak from the dispensing system outside the dispenser housing by conducting a pre-fill pressure test. The leak detection must be capable of detecting a minimum leak rate of 1.9 gallon/minute (7.2 liter/minute) and shall actuate in accordance with subsection (h) of this section when a leak is detected.
(e) Whether the fill is communicated or non-communicated, the dispensing system must be listed, labeled or approved to insure that the fills are protective of the safety of the temperature, pressure and flow rate limits of the on-board fuel system during fueling.
(f) The dispensing area shall be equipped with a fire detection system and shall actuate in accordance with subsection (i) of this section if a fire is detected.
(g) A ventilation system shall be installed for the dispensing area. The ventilation system shall be capable of delivering ventilation air as provided in section 4.3.7. The ventilation system shall operate prior to dispenser operation, during fueling, and for at least 1 minute after fueling has been completed. The ventilation flow rate shall be monitored. Failure or reduction of the ventilation flow rate below the required flow rate shall shut down the dispensing system.
Exemption: A dispensing area ventilation system is not required when the fuel delivery per refueling event is less than those listed in table 4-4.9.

Table 4-4.9

Room Size (m3)	Maximum fuel delivery per refueling event that does not require room ventilation (kg)
1000	0.8
2000	1.7
3000	2.5
4000	3.3
5000	4.2

(h) The actuation of any 1 of the systems listed in subsections (b) to (g) of this section shall shut down the dispenser, stop the flow of gas into the room, and start or continue to run the ventilation system, if required, it shall be in accordance with table 4-4.9.
(1) Reactivation of the dispenser and gas flow into the room shall be by manual restart and shall be conducted by trained personnel.
(i) Interior walls, doors, and window openings within 15 feet (4.6 meters) of the dispenser shall be constructed of materials having a fire rating of at least 2 hours. Wall penetrations shall require use of listed fire-rated equipment.
(j) The owner/operator shall not allow hot work/open flames within 15 feet (4.6 meters) of the refueling location unless the dispenser is shut down, depressurized, and purged.
(k) If H_2 is to be removed from the vehicle storage system, H_2 shall be discharged into a closed transfer system or vented outdoors in accordance with CGA G-5.5, "*Hydrogen Vent Systems*," as adopted by reference in section 8.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7106 Canopies.
Rule 106. Sections 4-5 to 4-5.2 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
4-5 Canopies.
4-5.1 A container installation that has a canopy or roof shall have prior approval by the department based on the best interests of public health, safety, and welfare and the environment. This canopy or roof shall not limit the dissipation of heat or dispersion of flammable vapors and cannot restrict firefighting access and control.
4-5.2 A roof or canopy shall meet all of the following conditions:
(a) The lowest elevation of the roof or canopy shall not be less than 4 feet (1.8 meters) from the top of the container.
(b) All container vent(s) are extended through the roof or canopy.
(c) The roof or canopy is constructed in such a way that it will not allow for vapors to accumulate under the canopy or roof.
(d) Constructed of non-combustible materials.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7107 Outdoor fill station.
Rule 107. Sections 4-6 to 4-6.2 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
4-6 Outdoor fill station.
4-6.1 Each line between a liquid storage facility and a dispenser at a fill station shall have a valve that closes when 1 of the following occurs:
The power supply to the dispenser is cut off.
Any emergency shutdown device at the refueling station is activated.
A manual shutoff valve shall be provided at a fill station upstream of the breakaway device specified in section 3-5, where it is readily accessible to the person dispensing H_2, unless 1 of the following occurs:
(a) The self-closing valve referred to in section 4-6.1 is located immediately upstream of the dispenser.
(b) The dispenser is equipped with a self-closing valve that closes each time the dispenser is turned to the off position or when an emergency device is activated.
4-6.3 The liquid hydrogen dispenser shall provide a means to safely vent all hydrogen that may become trapped in sections of the dispenser between closed valves in all shut down modes including loss of power.
History: 2008 MR 8, Eff. May 1, 2008.

Chapter 5 Operation

R 29.7108 Operation.
Rule 108. Section 5-1 is reproduced from NFPA 50B, and sections 5-1.1 to 5-1.9 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:

Operation. For installations that require any operation of equipment by the user, instructions shall be maintained at operating locations.
Where an overpressure incident that results in operation of the overpressure protection system of the dispenser occurs, the dispenser pressure control system shall be examined and certified by a qualified operator prior to being returned to service.
Liquefied H_2 fueling facilities shall be designed so that, in the event of a power failure, the system shall go into fail-safe condition.
The maximum delivery pressure at the vehicle tank inlet shall not exceed the maximum allowable pressure of the vehicle fuel tanks.
Hose and arms shall be equipped with a shutoff valve at the fuel end and a breakaway device that meets the requirements of section 3-5 to minimize release of liquid and vapor in the event that a vehicle pulls away while the hose remains connected. Such a device shall be installed and maintained in accordance with the manufacturer's instructions.
When not in use, hose shall be secured to protect it from damage.
Where a hose or arm of nominal 3 inches (7.62 centimeters) diameter or larger is used for liquid transfer or where 1 of nominal 4 inches (10.16 centimeters) diameter or larger is used for vapor transfer, an emergency shutoff valve shall be installed in the piping of the transfer system within 10 feet (3.1 meters) from the nearest end of the hose or arm.
Where either a liquid or vapor line has 2 or more legs, an emergency shutoff valve shall be installed either in each leg or in the line before the legs.
Bleed or vent connections shall be provided so that loading arms and hose can be drained and depressurized prior to disconnection, if necessary. These bleed or vent connections shall lead to a safe point of discharge.
A fueling connector and mating vehicle receptacle shall be used for reliable, safe, and secure transfer of liquefied or gaseous H_2 to or from the vehicle with minimal leakage.
The fueling connector either shall be equipped with an interlock device that prevents release while the line is open or shall have self-closing ends that automatically close upon disconnection.
The transfer of liquefied H_2 into vehicular onboard fuel supply containers shall be performed in accordance with the manufacturer's instructions. The dispenser manufacturer's instructions shall be posted at the dispensing device.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7109 Maintenance.
Rule 109. Sections 5-2 to 5-2.11 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
Maintenance.
5-2.1 Hoses, nozzles, and breakaways shall be examined visually to ensure that they are safe for use and shall be maintained in accordance with manufacturer's instructions on at least a quarterly basis, or if required by the manufacturer.
Hose shall be tested for leaks per manufacturer's requirements, and any leakage shall be a reason for rejection and replacement.
Testing shall be carried out with helium or with helium/ H_2 blend as the test gas or if this is not possible, with H_2 using suitable precautions.
The facility operator shall maintain a maintenance log in good condition and accessible to department inspection. Records shall be maintained for a minimum of 2 years.
Controllers on fuel stations shall be designed to verify the integrity of the fuel hose, breakaway, nozzle, and receptacle by pressurizing these components to at least the vehicle back pressure and checking pressure drop prior to the start of fueling.
Containers and their appurtenances, piping systems, compression equipment, controls, and detection devices shall be maintained in operating condition and according to manufacturer's instructions.
Pressure relief valves shall be maintained in operating condition.
Maintenance personnel shall be trained in leak detection procedures.
Area within 10 feet (3.1 meters) of dispenser shall be free from debris, weeds and other material that present a fire hazard.
Safety, gas detection, and fire protection equipment shall be tested or inspected at intervals not to exceed 6 months.
Maintenance activities on fire control equipment shall be scheduled so that a minimum of equipment is taken out of service at any 1 time and fire prevention safety is not compromised.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7110 Cathodic protection maintenance.
Rule 110. Sections 5-3 and 5-3.1 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
5-3 Cathodic protection maintenance.
5-3.1(a) Owners and operators shall ensure that all metallic container systems that are underground, mounded, or partially underground are protected and maintained to minimize corrosion as cited in the NACE standard RP0169 entitled "*Recommended Practice, Control of External Corrosion of Underground or Submerged Metallic Piping Systems*" and NACE

recommended practice RP0285 entitled "*Corrosion Control of Underground Storage Tank Systems by Cathodic Protection,*" adopted by reference in section 8.

(b) All corrosion protection systems shall be operated and maintained to continuously provide corrosion protection to the metal components of the portion of the ASME approved container system that routinely contains liquid H_2 and that is in contact with the ground.

(c) All container systems equipped with cathodic protection systems shall be inspected for proper operation by a NACE certified cathodic protection tester as defined in section 1-3. The H_2 system shall be tested within 6 months of installation and at least once each calendar year at intervals not to exceed 15 months.

(d) Container systems equipped with impressed current cathodic protection systems shall be inspected by the owner every 60 days to ensure that the equipment is operating within design specifications. The design limits shall be readily available.

(e) If container systems are equipped with cathodic protection, then the owner or operator shall maintain records to demonstrate that the cathodic protection is in compliance with the performance standards of this section. The records shall provide both of the following:

(i) The results of the last 3 inspections required in subsection (d) of this section.

(ii) The results of testing from the last 2 inspections required in subsection (c) of this section.

(f) Within 6 months following the repair of any cathodically protected container system, where the repairs may affect the operation of the cathodic protection system, the system shall be tested in accordance with subsections (c) and (d) of this section to ensure that it is operating properly.

(g) Repairs or replacement of a cathodic protection system shall be conducted by a NACE certified corrosion expert as defined in section 1-3. General system maintenance of the cathodic protection system including, but not limited to, replacement of fuses, and splicing of cable would not be required to be designed by a corrosion expert and shall be approved by the department to not increase the hazard to public health, safety, and welfare and the environment.

History: 2008 MR 8, Eff. May 1, 2008.

R 29.7111 Stray or impressed currents and bonding.

Rule 111. Sections 5-4 to 5-4.3 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:

Stray or impressed currents and bonding.

Where stray or impressed currents are used or can be present on dispensing systems, such as cathodic protection, protective measures to prevent ignition shall be taken.

5-4.2 Static protection between the fuel dispenser and the vehicle shall not be required where H_2 is transferred by conductive hose, flexible metallic tubing, or pipe connections where both halves of the metallic couplings are in continuous contact.

The transfer surface shall be concrete or shall have a resistivity not exceeding API RP 2003, "*Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents,*" adopted by reference in section 8, performance criteria of 1 megohm as measured using a method acceptable to the department, such as EN 1081:1998 "*Resilient Floor Coverings – Determination of the Electrical Resistance,*" adopted by reference in section 8.

History: 2008 MR 8, Eff. May 1, 2008.

R 29.7112 Emergency plan.

Rule 112. Sections 5-5 to 5-5.1.2 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:

5-5 Emergency plan.

5-5.1 Emergency plan requirements.

5-5.1.1 An emergency plan shall be prepared and updated wherever gaseous or liquefied H_2 are produced, handled, stored, or used.

The plan shall be available to the department for inspection upon reasonable notice and shall include all of the following information:

(a) The type of emergency equipment available and its location.

(b) A brief description of any testing or maintenance programs for the available emergency equipment.

(c) An indication that hazard identification labeling is provided for each storage area.

(d) Location of posted emergency procedures.

(e) A material safety data sheet (MSDS or equivalent) that is available for the gaseous or liquefied H_2 stored or used on the site.

(f) A list of personnel or a site operating authority who are designated and trained to be liaison personnel for the fire department and who are responsible for but shall not be limited to the following:

(i) Aiding the emergency responders in pre-emergency planning.

(ii) Identifying the location of the gaseous and liquefied H_2 stored or used.
(iii) Accessing material safety data sheets.
(iv) Knowledge of the site emergency procedures.
(g) A list of types and quantities of gaseous and liquefied H_2 found within the facility.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7113 Release of H_2.
Rule 113. Sections 5-6 to 5-6.2 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
Release of H_2.
Records of unexpected discharges. Accurate records of the unexpected discharge of gaseous or liquefied H_2 shall be kept by the facility and made readily available upon request. Records shall be kept for a minimum of 2 years.
Container failure. When an unexpected discharge due to primary container failure is discovered the department and the local fire department, shall be immediately notified, and the container shall be repaired or be removed from service.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7114 Security.
Rule 114. Sections 5-7 and 5-7.1 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
Security.
5-7.1 Liquid H_2 and compressed gas cylinders, containers, and systems shall be secured against accidental dislodgement and against access by unauthorized personnel.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7115 Leaks, damage, or corrosion.
Rule 115. Sections 5-8 and 5-8.1 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
Leaks, damage, or corrosion.
Leaking, damaged, or corroded, liquid or gaseous H_2 systems shall be removed from service, replaced or repaired.
History: 2008 MR 8, Eff. May 1, 2008.

Chapter 6 Fire protection

R 29.7116 Cautionary information.
Rule 116. Sections 6-1 to 6-1.2 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
6-1 Cautionary information.
6-1.1 Hazard identification signs shall be conspicuously placed at all locations where H_2 is produced, stored, used, or handled.
6-1.2 Ratings shall be assigned in accordance with NFPA 704, "*Standard System for the Identification of the Hazards of Materials for Emergency Response*," adopted by reference in section 8.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7117 Signs.
Rule 117. Sections 6-2 to 6-2.3 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
6-2.1 Signs prohibiting smoking or open flames within 25 feet (7.6 meters) shall be provided where H_2 is produced, stored, or used.
6-2.2 A sign with the following legends printed in red capital letters on a white background shall be conspicuously posted as follows:
"NON-ODORIZED FLAMMABLE GAS – CRYOGENIC LIQUID or COLD GAS – NO SMOKING – NO OPEN FLAMES"
All lettering on signage shall be 3 inches (7.62 centimeters) or more.
Exception: This does not apply to motor vehicle dispensing per sections 7.2.13 and 4-4.8.1.
6-2.3 Identification signs. Visible hazard identification signs shall be provided in accordance with NFPA 704, "*Standard System for the Identification of the Hazards of Materials for Emergency Response*", adopted by reference in section 8.1.1, at entrances to buildings or areas in which liquefied H_2 is stored, handled or used.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7118 Fire extinguisher.
Rule 118. Section 6-3 of the storage and handling of gaseous and Liquefied H_2 code is added as follows:

6-3 A portable fire extinguisher(s) having a rating of not less than 40-B:C or 2-20-B:C shall be located within 75 feet (22.9 meters) from the pumps, dispensers, and container fill openings. Fire extinguishers shall be inspected and maintained according to NFPA 10, "*Standard for Portable Fire Extinguishers*," adopted by reference in section 8-1.1.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7119 Sprinkler protection.
Rule 119. Section 6-4 of the storage and handling of gaseous and Liquefied H_2 code is added as follows:
6-4 When sprinkler protection is provided, the area in which H_2 is stored or used shall be protected with an automatic sprinkler system designed to be not less than that required by NFPA 13, "*Standard for the Installation of Sprinkler Systems,*" adopted by reference in section 8.
History: 2008 MR 8, Eff. May 1, 2008.

Chapter 7 Liquefied hydrogen dispensing systems

R 29.7120 System component qualification.
Rule 120. Section 7-1 of the storage and handling of gaseous and Liquefied H_2 code is added as follows:
System component qualification. System components shall comply with applicable provisions of Chapters 2 and 3 of this part.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7121 General system requirements.
Rule 121. Sections 7-2 to 7-2.15 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
7-2 General system requirements.
All fuel dispensing facilities shall meet the provisions of this chapter.
7-2.2 Compression, processing, generation, storage, and dispensing equipment shall be protected to prevent damage from vehicles and minimize the possibilities of physical damage and vandalism and meet the requirements of section 2-1.5 and section 3-4.4.
7-2.2.1 Access to liquefied H_2 storage, compression, and processing equipment by members of the public shall be restricted by a suitable secure area.
7-2.3 Control devices shall be installed so that internal or external icing does not cause vehicle or fueling station malfunction.
7-2.4 Vehicles shall not be considered a source of ignition with respect to the provisions of this chapter.
Exception: Vehicles containing fuel-fired equipment, such as recreational vehicles and catering trucks, shall be considered a source of ignition unless this equipment is shut off completely before entering an area in which ignition sources are not permitted.
The fueling connection shall prevent the escape of H_2 where the connector is not properly engaged or becomes separated.
Fueling nozzles for H_2 service shall be in accordance with section 2-14.1.
Compression and processing equipment shall be designed for use with H_2 and for maximum pressures and temperatures to which it can be subjected under normal operating conditions.
Compression and processing equipment shall have pressure relief devices that limit each stage pressure to the maximum allowable working pressure for the compression cylinder and piping associated with that stage of compression and meets the requirements of chapter 2.
H_2 compression equipment shall be equipped with appropriate automatic shutdown controls.
Control circuits that shut down, shall remain down until manually activated or reset by qualified personnel.
A hazard analysis shall be conducted on every H_2 fueling system installation by a qualified engineer(s) with proven expertise in H_2 fueling systems and installations.
The hazard analysis shall include the following: fire protection measures, fire protection and suppression systems, detection systems, and ventilation.
At a minimum, the hazard analysis shall include consideration of potential failures in hoses, nozzles, dispensing equipment, as well as failures for maintenance and service.
7-2.11.3 Method used for hazard analysis shall be 1 or combination of several of the following recognized procedures: hazard and operability studies (HAZOPs), failure mode effects and criticality analysis (FMECA), preliminary hazards analysis (PHA), fault tree analysis (FTA) and event tree analysis (ETA). Other analysis methods, when used, shall ensure same level of system safety as provided by any of the recognized procedures or acceptable to the department based on the best interest of public health, safety, and welfare, and the environment.
Standard designs that have been analyzed by recognized procedure need not be studied each and every time such installation occurs. Site-specific elements that are unique to the installation shall be reviewed in concert with the analysis performed on

the standard system to ensure that the standard design has not been altered in a way that would negatively affect the hazard analysis.
These hazard analyses shall be available for review at final inspection, prior to the installation being placed into service, shall be maintained on site, and be available to the department upon request.
Dispensing systems shall be equipped with overfill protection.
Warning signs shall be conspicuously posted in the dispensing area and shall incorporate the following or equivalent wording: "Stop Motor, No Smoking, Non-Odorized Flammable Gas, Cryogenic Liquid or Cold Gas. Remain in attendance outside of the vehicle and in view of the nozzle. No filling of portable containers in or on a motor vehicle."
Each outdoor H_2 -dispensing device shall be located not less than 10 feet (3.1 meters) from property lines, openings to buildings, and buildings of combustible wall construction. A dispensing device shall not be less than 20 feet (6.1 meters) from any activity that involves a fixed source of ignition. In addition, a dispenser shall not be placed beneath a power line.
Each container filling location that is open to the public shall have an attendant or supervisor on duty who meets the requirements of section 1-8 of the rules.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7122 Operational requirements for full-service liquefied H_2 motor fuel dispensing facilities.
Rule 122. Sections 7-3 to 7-3.2 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
Operational requirements for full-service liquefied H_2 motor fuel dispensing facilities.
Each motor fuel dispensing facility shall have an attendant or supervisor on duty whenever the facility is open for business. The attendant or supervisor shall dispense liquefied H_2 into fuel tanks of motor vehicles or into portable containers.
7-3.2 The provisions of section 2-1 of this part shall not prohibit the temporary use of a portable storage container in conjunction with the dispensing of liquefied H_2 into a container of a motor vehicle or other motorized equipment which is on the premises and which is not accessible to the public. A portable storage container installation shall only be made with the approval of the department and comply with all the requirements of section 2-13.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7123 Operational requirements for attended self-service motor fuel dispensing facilities.
Rule 123. Sections 7-4 to 7-4.5 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
Operating requirements for attended self-service motor fuel dispensing facilities.
Self-service motor fuel dispensing facility shall mean that portion of a property where liquefied H_2 used as motor fuel is stored and dispensed from fixed, approved dispensing equipment into the fuel containers of motor vehicles by persons other than the facility attendant and shall also include, where provided, facilities for sale of other retail products.
There shall be not less than 1 attendant on duty while the self-service facility is open for business. The attendant's primary function shall be to supervise, observe, and control the dispensing of liquefied H_2 while the liquefied H_2 is actually being dispensed.
The responsibility of the attendant shall be as follows:
(a) Prevent the dispensing of liquefied H_2 into portable containers in or on a motor vehicle.
Control sources of ignition.
(c) Immediately activate emergency controls and notify the fire department of any fire.
The attendant or supervisor on duty shall be mentally and physically capable of performing the functions and assuming the responsibility prescribed in section 7-4.
Operating instructions shall be conspicuously posted in the dispensing area.
The dispensing area shall at all times be in clear view of the attendant, and the placing or allowing of any obstacle to come between the dispensing area and the attendant control area is prohibited. This may be achieved by cameras or mirrors, or both. The attendant shall at all times be able to communicate with persons in the dispensing area.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7124 Operational requirements for unattended self-service motor fuel dispensing facilities.
Rule 124. Sections 7-5 to 7-5.5 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
Operating requirements for unattended self-service motor fuel dispensing facilities.
Unattended self-service shall be permitted subject to the approval of the department based on the best interests of public health, safety, and welfare and the environment. Users shall use a key, card, or other method which is unique to each user, and which is provided by the facility operator, and shall be properly trained in dispensing operations. The owner shall verify such training to the department upon request.
At least 1 emergency shutoff device specified in section 7-6 shall be provided, and shall be reset only by the owner or an owner's authorized agent.

Operating instructions shall be conspicuously posted in the dispensing area. The instructions shall include the location of emergency controls.
In addition to the warning signs specified in section 6-2, emergency instructions shall be conspicuously posted in the dispenser area. The instructions shall incorporate the following or equivalent wording:
"Emergency Instructions
In Case of Fire:
Use emergency stop button.
Report accident by calling the local fire number. Report location."
A telephone or other approved, clearly identified means to notify the fire department shall be provided on the site in a location approved by the department.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7125 Emergency shutoff devices.
Rule 125. Sections 7-6 and 7-6.1 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
Emergency shutoff devices.
Liquefied H_2 dispensing systems shall be provided with 1 or more clearly identified emergency shutoff devices or electrical disconnects at the dispensing area. Such devices or disconnects shall be installed in approved locations but not less than 10 feet (3.1 meters) and not more than 100 feet (30.5 meters) away from the dispensing area and which is along the means of egress. Emergency shutoff devices or electrical disconnects shall disconnect power and fuel supply to all dispensing devices, to all remote pumps serving the dispensing devices, and to all associated power. When more than 1 emergency shutoff device or electrical disconnect is provided, all devices shall be interconnected. Resetting an emergency shutoff shall require manual intervention and the manner of resetting shall be approved by the department.
History: 2008 MR 8, Eff. May 1, 2008.

R 29.7126 Refueling from transport vehicles.
Rule 126. Sections 7-7 to 7-7.11 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
Refueling from transport vehicles. The dispensing of liquefied H_2 in the open from a transport vehicle to a motor vehicle located at commercial, industrial, governmental, or manufacturing establishments and intended for fueling vehicles used in connection with their businesses shall be permitted if all of the requirements of sections 7-7.1 to 7-7.11 have been met.
The department shall be notified before commencing operations under section 7-7.
The transport vehicle shall comply with U.S. DOT requirements for the transportation of liquefied H_2.
Nighttime deliveries shall only be made in an area considered to be adequately lighted.
The transport vehicle flasher lights shall be in operation while dispensing operations are in progress.
Smoking materials, including matches, lighters, and other sources of ignition, including torches, shall not be used within 20 feet (6.1 meters) of the dispensing of liquefied H_2 in the open from a transport vehicle to a motor vehicle.
Each area where dispensing of liquefied H_2 in the open from a transport vehicle to a motor vehicle shall be provided with 1 or more listed fire extinguishers that have a minimum capability of 40-B:C. The fire extinguishers shall be readily accessible to the dispensing operation. Fire extinguishers shall be inspected and maintained under NFPA 10, "*Standard for Portable Fire Extinguishers,*" adopted by reference in section 8.
Mobile fueling shall take place aboveground, shall not be beneath electric power lines or where exposed by their failure, and shall be 10 feet (3.1 meters) from the nearest important building, property lines or combustible storage.
Transport vehicle brakes shall be set and chock blocks shall be in place.
Persons performing dispensing operations shall be qualified to deliver and dispense H_2 fuels. Operations of transport vehicles used for mobile fueling operations shall have access on-site or be in possession of an emergency communications device to notify the proper authorities if there is an emergency.
The transport vehicles shall be positioned with respect to vehicles being fueled to prevent traffic from driving over the delivery hose and between the transport vehicle and motor vehicle being fueled. The dispensing hose shall be properly placed on an approved reel or in an approved compartment before moving the transport vehicle.
The transfer area shall meet the requirements of section 5-4.
History: 2008 MR 8, Eff. May 1, 2008.

Chapter 8 Referenced publications

R 29.7127 Referenced publications.
Rule 127. Sections 8-1 to 8-1.2.9 of the storage and handling of gaseous and Liquefied H_2 code are added as follows:
The following documents or portions thereof are referenced within this standard as mandatory requirements and shall be

considered part of the requirements of this standard. The edition indicated for each referenced mandatory document is the current edition, and cost at time of adoption of these rules. Copies of the adopted publications are available for inspection at the office of the Department of Environmental Quality, Waste and Hazardous Materials Division, Storage Tank Unit, P.O. Box 30241, Lansing, Michigan 48909-7741.

NFPA Publications. National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, Massachusetts 02269-9101.

NFPA 10, "*Standard for Portable Fire Extinguishers,"* 2002 edition, $36.50.

NFPA 13, "*Standard for the Installation of Sprinkler Systems,"* 2002 edition, $70.00.

NFPA 69, "*Standard on Explosion Prevention Systems,"* 2002 edition, $33.50.

NFPA 70, "*National Electrical Code,"* 2005 edition, $75.00.

NFPA 220, "*Standard on Types of Building Construction,*" 1999 edition, $28.00.

NFPA 704, "*Standard System for the Identification of the Hazards of Materials for Emergency Response,"* 2001 edition, $33.50.

Other Publications.

ASME Publications. American Society of Mechanical Engineers, Three Park Avenue, New York, New York 10016-5990.

ANSI/ASME B31.3, "*Process Piping,"* 2004 edition, $240.00.

ASME International, "*Boiler and Pressure Vessel Code,"* Section VIII, 2004 edition, $525.00.

ASTM Publication. American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, Pennsylvania 19428-2959.

ASTM E136-04, "*Standard Test Methods for Behavior of Materials in a Vertical Tube Furnace at 750 Degrees C," 2004* edition, $35.00.

CGA Publications. Compressed Gas Association, 1725 Jefferson Davis Highway, Arlington Virginia 22202-4100.

CGA S-1.1, "*Pressure Relief Device Standards – Part 1 – Cylinders for Compressed Gases,"* 2002 edition, $196.00.

CGA S-1.2, "*Pressure Relief Device Standards – Part 2 – Cargo and Portable Tanks for Compressed Gases,"* 1995 edition, $145.00.

CGA S-1.3, "*Pressure Relief Device Standards – Part 3 – Stationary Storage Containers for Compressed Gases,"* 2003 edition, $145.00.

CGA G-5.5, "*Hydrogen Vent Systems,"* 2004 edition, $39.00.

ANSI/CGA C-4, "*Method of Marking Portable Compressed Gas Containers to Identify the Material Contained,*" 2003 edition, $252.00.

CGA C-7, "*Guide to the Preparation of Precautionary Labeling and Marking of Compressed Gas Containers,"* 2000 edition, $268.00.

IAS Publications. International Approval Services, 8501 East Pleasant Valley Road, Cleveland, Ohio 44131.

ANSI/IAS NGV 4.4, "*Breakaway Devices for Dispensing Systems,"* 1999 edition, $57.00.

NACE Publications. National Association of Corrosion Engineers International, 1440 South Creek Drive, Houston, Texas 77084.

NACE RP0169, "*Control of External Corrosion of Underground or Submerged Metallic Piping Systems,"* 2002 edition, $42.00.

NACE RP0285, "*Corrosion Control of Underground Storage Tank Systems by Cathodic Protection,"* 2002 edition, $37.00.

8-1.2.6 International Codes Council. 4051 West Flossmore Road, Country Club Hills, Illinois 60478-5795.

"*International Fire Code,"* 2006 edition, section 2209.3.2.6, $61.50.

8-1.2.7 U.S. Government Publications. U.S. Government Printing Office, Washington, DC 20402.

Title 49, *Code of Federal Regulations*, Parts 171-190, U.S. Department of Transportation *Specifications and Regulations.*

ECS Publications. European Committee for Standardization, Central Secretariat: rue de Stassart 36, B-1050, Brussels.

EN 1081, "*Resilient Floor Coverings, Determination of the Electrical Resistance,"* 1998 edition, $32.00.

API Publications. American Petroleum Institute, 1220 L Street, Northwest, Washington, DC, 20005-5-4070.

API Recommended Practice 2003, "*Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents,"* 7th edition, $111.00.

History: 2008 MR 8, Eff. May 1, 2008.

EMERGENCY SERVICES DIVISION
STATE ASSISTANCE TO LOCAL POLITICAL SUBDIVISIONS

R 30.1

Source: 1997 AACS.

R 30.2
Source: 1997 AACS.

R 30.3
Source: 1997 AACS.

R 30.4
Source: 1997 AACS.

R 30.5
Source: 1997 AACS.

R 30.6
Source: 1997 AACS.

R 30.7
Source: 1997 AACS.

R 30.8
Source: 1997 AACS.

R 30.9
Source: 1997 AACS.

R 30.10
Source: 1997 AACS.

R 30.11
Source: 1997 AACS.

R 30.12
Source: 1997 AACS.

R 30.13
Source: 1997 AACS.

R 30.14
Source: 1997 AACS.

R 30.15
Source: 1997 AACS.

R 30.16
Source: 1997 AACS.

R 30.17
Source: 1997 AACS.

R 30.18
Source: 1997 AACS.

R 30.19
Source: 1997 AACS.

EMERGENCY MANAGEMENT DIVISION

EMERGENCY MANAGEMENT TRAINING

R 30.31
Source: 1994 AACS.

R 30.32
Source: 1994 AACS.

R 30.33
Source: 1994 AACS.

R 30.34
Source: 1994 AACS.

STATE ASSISTANCE TO COUNTIES AND MUNICIPALITIES

R 30.51
Source: 1994 AACS.

R 30.52
Source: 1994 AACS.

R 30.53
Source: 1994 AACS.

R 30.54
Source: 1994 AACS.

R 30.55
Source: 1994 AACS.

R 30.56
Source: 1994 AACS.

R 30.57
Source: 1994 AACS.

R 30.58
Source: 1994 AACS.

R 30.59
Source: 1994 AACS.

R 30.60
Source: 1994 AACS.

R 30.61
Source: 1994 AACS.

DEPARTMENT OF MILITARY AFFAIRS

OFFICE OF THE DIRECTOR AND ADJUTANT GENERAL

RENTAL OF ARMORIES AND GROUNDS

R 32.1
Source: 1979 AC.

R 32.2
Source: 1979 AC.

R 32.3
Source: 1979 AC.

R 32.4
Source: 1979 AC.

R 32.5
Source: 1979 AC.

R 32.6
Source: 1979 AC.

R 32.7
Source: 1979 AC.

OFFICE OF THE DIRECTOR AND ADJUTANT GENERAL

PART 1. OFFICE OF THE ADJUTANT GENERAL AND DIRECTOR

R 32.11
Source: 1979 AC.

R 32.12
Source: 1979 AC.

R 32.13
Source: 1979 AC.

R 32.14
Source: 1979 AC.

R 32.16
Source: 1979 AC.

PART 2. ARMY NATIONAL GUARD DIVISION

R 32.21
Source: 1979 AC.

R 32.22
Source: 1979 AC.

R 32.23
Source: 1979 AC.

R 32.24
Source: 1979 AC.

R 32.25
Source: 1979 AC.

R 32.26
Source: 1979 AC.

R 32.27
Source: 1979 AC.

PART 3 AIR NATIONAL GUARD DIVISION

R 32.31
Source: 1979 AC.

R 32.32
Source: 1979 AC.

R 32.33
Source: 1979 AC.

R 32.34
Source: 1979 AC.

R 32.35
Source: 1979 AC.

R 32.36
Source: 1979 AC.

PART 4. COMPTROLLER DIVISION

R 32.41
Source: 1979 AC.

R 32.42
Source: 1979 AC.

R 32.43
Source: 1979 AC.

R 32.44
Source: 1979 AC.

R 32.45
Source: 1979 AC.

PART 5. UNITED STATES PROPERTY AND FISCAL OFFICER

R 32.51
Source: 1979 AC.

PART 6. MICHIGAN DEFENSE FORCE

R 32.61
Source: 1979 AC.

VETERANS HOME RULES

R 32.71
Source: 2007 AACS.

R 32.72
Source: 2007 AACS.

R 32.73
Source: 2007 AACS.

R 32.74
Source: 2007 AACS.

R 32.75
Source: 2007 AACS.

R 32.76
Source: 2007 AACS.

R 32.77
Source: 2007 AACS.

R 32.78
Source: 2007 AACS.

R 32.79
Source: 2007 AACS.

R 32.80
Source: 2007 AACS.

R 32.81
Source: 2007 AACS.

R 32.82
Source: 2007 AACS.

R 32.83
Source: 2007 AACS.

R 32.84
Source: 2007 AACS.

R 32.85
Source: 2007 AACS.

R 32.86
Source: 2007 AACS.

R 32.87
Source: 2007 AACS.

R 32.88
Source: 2007 AACS.

R 32.89
Source: 2007 AACS.

OFFICE OF THE DIRECTOR AND ADJUTANT GENERAL

INTERIM BOND PROCEDURES

R 32.101
Source: 1986 AACS.

R 32.102
Source: 1986 AACS.

R 32.103
Source: 1986 AACS.

R 32.104
Source: 1986 AACS.

R 32.105
Source: 1986 AACS.

R 32.106
Source: 1986 AACS.

R 32.107
Source: 1986 AACS.

ADMINISTRATION OF OATHS AND AFFIRMATIONS

R 32.151
Source: 1986 AACS.

MILITARY APPEALS TRIBUNAL PROCEDURES

R 32.171
Source: 1986 AACS.

R 32.172
Source: 1986 AACS.

R 32.173
Source: 1986 AACS.

R 32.174
Source: 1986 AACS.

R 32.175
Source: 1986 AACS.

R 32.176
Source: 1986 AACS.

R 32.177
Source: 1986 AACS.

R 32.178
Source: 1986 AACS.

R 32.179
Source: 1986 AACS.

R 32.180
Source: 1986 AACS.

R 32.181
Source: 1986 AACS.

R 32.182
Source: 1986 AACS.

R 32.183
Source: 1986 AACS.

R 32.184
Source: 1986 AACS.

R 32.185
Source: 1986 AACS.

R 32.186
Source: 1986 AACS.

VETERANS' TRUST FUND BOARD OF TRUSTEES

PROCEDURE FOR APPEALS AND HEARINGS

R 35.1
Source: 1979 AC.

R 35.2
Source: 1979 AC.

R 35.3
Source: 1979 AC.

R 35.4
Source: 1979 AC.

R 35.5
Source: 1979 AC.

R 35.6
Source: 1979 AC.

R 35.7
Source: 1979 AC.

STUDENT GRANTS

R 35.601
Source: 1979 AC.

R 35.602
Source: 1979 AC.

R 35.603
Source: 1979 AC.

R 35.604
Source: 1979 AC.

R 35.605
Source: 1979 AC.

R 35.606
Source: 1979 AC.

R 35.607
Source: 1979 AC.

R 35.608
Source: 1979 AC.

R 35.609
Source: 1979 AC.

R 35.610
Source: 1979 AC.

R 35.611
Source: 1979 AC.

R 35.612
Source: 1979 AC.

VETERANS' TRUST FUND BOARD OF TRUSTEES

GRANTS TO ELIGIBLE MICHIGAN VETERANS

R 35.621
Source: 1979 AC.

R 35.622
Source: 1979 AC.

R 35.623
Source: 1979 AC.

VETERANS' TRUST FUND BOARD OF TRUSTEES

STUDENT LOANS

R 35.631
Source: 1979 AC.

R 35.632
Source: 1979 AC.

R 35.633
Source: 1979 AC.

R 35.634
Source: 1979 AC.

R 35.639
Source: 1979 AC.

VETERANS' TRUST FUND BOARD OF TRUSTEES

STUDENT GRANTS

R 35.651
Source: 1985 AACS.

R 35.652
Source: 1985 AACS.

R 35.652a
Source: 1985 AACS.

R 35.653
Source: 1985 AACS.

R 35.654
Source: 1985 AACS.

DEPARTMENT OF MANAGEMENT AND BUDGET

STATE EMPLOYEES' RETIREMENT BOARD

GENERAL RULES

R 38.1 Rescinded.
History: 1944 ACS 37; 1954 AC; 1979 AC; rescinded MR 8, Eff. May 1, 2008.

R 38.2 Rescinded.
History: 1944 ACS 37; 1954 AC; 1979 AC; rescinded MR 8, Eff. May 1, 2008.

R 38.3 Rescinded.
History: 1944 ACS 37; 1954 AC; 1979 AC; rescinded MR 8, Eff. May 1, 2008.

R 38.4 Rescinded.
History: 1944 ACS 37; 1954 AC; 1979 AC; rescinded MR 8, Eff. May 1, 2008.

R 38.5 Rescinded.
History: 1944 ACS 37; 1954 AC; 1979 AC; rescinded MR 8, Eff. May 1, 2008.

R 38.6 Rescinded.
History: 1944 ACS 37; 1954 AC; 1979 AC; rescinded MR 8, Eff. May 1, 2008.

R 38.7 Rescinded.
History: 1944 ACS 37; 1954 AC; 1979 AC; rescinded MR 8, Eff. May 1, 2008.

R 38.8 Rescinded.
History: 1944 ACS 37; 1954 AC; 1979 AC; rescinded MR 8, Eff. May 1, 2008.

R 38.11 Rescinded.
History: 1954 ACS 77, Eff. Nov. 30, 1973; 1979 AC; rescinded MR 8, Eff. May 1, 2008.

R 38.12 Rescinded.
History: 1954 ACS 77, Eff. Nov. 30, 1973; 1979 AC; rescinded MR 8, Eff. May 1, 2008.

PART I. DEFINITIONS - APPLICABILITY

R 38.21 Definitions.
Rule 21. (1) As used in these rules:
(a) "Act" means 1943 PA 240, MCL 38.1.
(b) "Administrative record" means the application and related documents used by the retirement system to review an application.
(c) "APA" means 1969 PA 306, MCL 24.201.
(d) "Application" means a request for a benefit provided by the act. "Application" also includes a request to reopen a closed application and a reapplication.
(e) "Board" means the retirement board as defined in MCL 38.1h(4) of the act and composed of those members set forth in MCL 38.3 of the act.
(f) "Bona fide termination of employment" for purposes of R 38.47 means that a member terminated employment in good faith, with honesty, and without any intent to return to a position covered by the act within the same month as the individual's retirement allowance effective date.
(g) "Closed application" means a request by an individual for a benefit provided by the act that was withdrawn by the individual or otherwise never decided by the retirement system or the board.
(h) "Dependent" or "dependents," as used in MCL 38.20d of the act means all of the following:
(1) The retirant's spouse.
(2) Any unmarried child of the retirant who is considered a dependent under section 152 of the internal revenue code.
(i) "Good cause," as used in MCL 38.21 and 38.24 of the act, means the legitimate inability to file an application within 1

year after termination of the member's employment. "Good cause" does not include a person's own careless neglect or inattention to the filing requirements.

(j) "Medical advisor," as used in MCL 38.21 and 38.24 of the act, means a physician designated by the retirement system.

(k) "Permanent," as used in MCL 38.21 and 38.24 of the act, means will last throughout the lifetime of the member.

(l) "Presiding officer" means presiding officer as defined in MCL 24.279 and 24.280 of the APA.

(m) "Reasonable medical treatment" means medical treatment that does not involve significant danger to life or extraordinary suffering and that has a reasonable probability of significantly improving the condition caused by the disease or injury.

(n) "Reapplication" means a request by an individual for a benefit provided by the act that was previously decided by the staff of the retirement system or the board.

(o) "Totally incapacitated," as used in MCL 38.21 and 38.24 of the act, means the member is unable to perform the duties of his or her current position, or any other position reasonably related to the member's education, training, or experience.

(2) Terms defined in the act and the APA have the same meaning when used in these rules.

History: 2008 MR 8, Eff. May 1, 2008.

R. 38.22 Applicability of APA.

Rule 22. The APA applies to contested case hearings held under the act.

History: 2008 MR 8, Eff. May 1, 2008.

R 38.23 Applicability; construction.

Rule 23. (1) These rules govern except as otherwise provided by the act or the APA. In areas not addressed by these rules or the APA, the presiding officer in a contested case may rely on appropriate provisions of the Michigan court rules.

(2) The intent of these rules is to secure a just, speedy, efficient, and fair determination of the issues presented.

History: 2008 MR 8, Eff. May 1, 2008.

PART II. PROCEDURAL RULES

R 38.24 Request hearing; statement of facts.

Rule 24. (1) If an application is denied by the staff of the retirement system and the applicant is notified in writing that he or she has 60 days from the date stated in this notification to request a hearing, then the request for hearing shall be filed in writing with the retirement system within 60 days after the date stated in this notification.

(2) A request for a hearing shall contain all of the following:

(a) A fair and accurate statement of the facts as the party understands them.

(b) The reason or reasons supporting the party's claim.

(c) The reasons why the decision of the staff of the retirement system should be reversed.

History: 2008 MR 8, Eff. May 1, 2008.

(2) A proposal for decision is not a final decision of the board unless the board orders it.

R 38.25 Proposals for decision; exceptions.

Rule 25. (1) Unless otherwise established by the presiding officer or the board, exceptions to a proposal for decision shall be filed with the State Office of Administrative Hearings and Rules within 21 days after service of the proposal for decision by the presiding officer, and replies to exceptions, if any, shall be filed with the State Office of Administrative hearings and Rules within 14 days after the service of the exceptions.

(2) Exceptions shall clearly and concisely recite the specific findings of fact and conclusions of law, or lack thereof, to which exception is taken, along with specific references to the record that support the exception.

(3) Objections to a proposal for decision are waived if a party does not file exceptions to a proposal for decision within the time permitted by this rule.

History: 2008 MR 8, Eff. May 1, 2008.

R 38.26 Action by the board.

Rule 26. The board shall act on every proposal for decision in a public meeting. The board may do any of the following:

(a) Remand the matter to the presiding officer or other presiding officer for further action.

(b) Issue a final decision approving, rejecting, or modifying the proposal for decision.

(c) Exercise any other power of the board.

History: 2008 MR 8, Eff. May 1, 2008.

R 38.27 Clerical mistakes; correction.
Rule 27. Clerical mistakes and errors arising from omissions or commissions made by the board may be corrected by the board at any time on its own initiative or as a result of a motion filed by a party.
History: 2008 MR 8, Eff. May 1, 2008.

R 38.28 Oral argument.
Rule 28. A party shall not have oral argument before the board on any contested case matter submitted to the board unless the board specifically grants a request for oral argument.
History: 2008 MR 8, Eff. May 1, 2008.

R 38.29 Refiling an application.
Rule 29. (1) Except as provided in subrule (3) of this rule, if an individual files an application that concerns a matter that has already been considered and denied by the staff of the retirement system and a timely request for hearing was not made, then the application shall not be considered and the individual shall be notified accordingly.
(2) Except as provided in subrule (4) of this rule, if an individual files an application that concerns a matter that has already been considered and denied by the board, the application shall not be considered and the individual shall be notified accordingly.
(3) If an individual's previous application for a disability retirement, as provided for in MCL 38.21 and 38.24 of the act, is denied by the staff of the retirement system and the individual did not make a timely request for hearing, then the individual may file a reapplication only if the individual did not terminate his or her employment in a position covered by the act and either worked after the denial and before the reapplication or was off work with the approval of his or her employer.
(4) If an individual's previous application for a disability retirement, as provided for in MCL 38.21 and 38.24 of the act, is denied by the board, then the individual may only file a reapplication if the individual did not terminate his or her employment in a position covered by the act and either worked after the denial and before the reapplication or was off work with the approval of his or her employer.
History: 2008 MR 8, Eff. May 1, 2008.

R 38.30 Documentary evidence.
Rule 30. (1)If the staff of the retirement system denies an application, and the applicant timely requests a hearing, then the staff of the retirement system shall provide a copy of its administrative record and notification to the applicant. The applicant shall have 30 days to file any additional documents that he or she wants the staff of the retirement system to consider.
History: 2008 MR 8, Eff. May 1, 2008.

R 38.31 Notarized signatures.
Rule 31. In all cases where the staff of the retirement system requires notarization of a signature, the signature shall be notarized. A notarized signature is presumed to represent the signature of the individual whose name it purports to be.
History: 2008 MR 8, Eff. May 1, 2008.

PART III. RETIREMENT/PENSION RULES

R 38.32 Medical advisor's opinion.
Rule 32. The opinion of an individual's treating physician shall not be given more weight than the opinion of the medical advisor with regard to an application for a disability retirement under MCL 38.21 and 38.24 of the act solely based on the relative length of time these physicians have spent examining an individual or because the medical advisor's review was based on an examination of the individual's medical records.
History: 2008 MR 8, Eff. May 1, 2008.

R 38.33 Reasonable medical treatment.
Rule 33. An individual shall pursue all reasonable medical treatment for the injury or disease that is the basis for his or her application for duty or non-duty disability as provided by MCL 38.21 and 38.24 of the act. The failure of an individual to pursue all reasonable medical treatment precludes a finding that the individual is totally and permanently incapacitated.
History: 2008 MR 8, Eff. May 1, 2008.

R 38.34 Duty disability.
Rule 34. An application for duty disability filed under MCL 38.21 of the act shall be denied if the personal injury or disease that is the basis for the application was any of the following:

(a) A condition which existed before becoming a member.
(b) The aggravation of a condition which existed before becoming a member.
(c)Was a A condition which arose while the applicant was a member but was not proximately caused by the member's employment.
History: 2008 MR 8, Eff. May 1, 2008.

R 38.35 Medical examination.
Rule 35. (1) For purposes of deciding eligibility for disability retirement under MCL 38.21 and 38.24 of the act, a medical examination conducted by 1 or more medical advisors means either a personal medical examination of the member or a review of the application and medical records of the member.
(2) If an applicant for a disability retirement under MCL 38.21 or MCL 38.24 of the act fails to submit to a reasonable medical examination requested by the system, the application shall be denied.
History: 2008 MR 8, Eff. May 1, 2008.

R 38.36 Other decisions not binding.
Rule 36. The board is not bound by a determination of disability issued by any other state or federal agency or private entity when the board is determining whether a member is entitled to a disability retirement provided by MCL 38.21 or 38.24 of the act.
History: 2008 MR 8, Eff. May 1, 2008.

R 38.37 Disability application.
Rule 37. (1) An individual who seeks a duty or non-duty disability retirement allowance, as provided in MCL 38.21 and 38.24 of the act, shall do both of the following:
(a) File an application on a form provided by the retirement system, including the names and addresses of all the applicant's health care providers and the date of treatment.
(b) Execute all necessary authorizations to disclose health information which permits the retirement system, or its agents, to obtain and review all health information that relates in any way to the basis for the claimed disability. The health information shall include what was created before, contemporaneously with, and subsequent to the date of the alleged injury or disease that is related to the medical condition.
(2) An individual shall not amend an application for duty or non-duty disability retirement filed under MCL 38.21 or 38.24 of the act after the expiration of the 30-day period in R 38.30, unless the individual demonstrates that the reason for wanting to amend the application was not known before the expiration of the 30-day period.
History: 2008 MR 8, Eff. May 1, 2008.

R 38.38 Suspension of retirement allowance.
Rule 38. The retirement allowance of a retirant shall be suspended during any time period that the retirant returns to work in a position covered by the act unless the retirement allowance resulted from a bona fide termination of employment.
History: 2008 MR 8, Eff. May 1, 2008.

R 38.39 Disability retirement.
Rule 39. (1) To receive a disability retirement under MCL 38.21 of the act, the member shall prove by a preponderance of the evidence that on or before the termination of his or her employment, he or she was totally incapacitated and that such incapacity was probably permanent.
(2) To receive a disability retirement under MCL 38.24 of the act, the member shall prove by a preponderance of the evidence that on or before the termination of his or her employment, he or she was totally incapacitated and that such incapacity was likely to be permanent.
(3) For purposes of MCL 38.21 and 38.24 of the act, the board shall not retire a member if the member can perform any job for which the member has experience, training, or education. If the board determines that a member is not mentally or physically totally incapacitated for further performance of duty or that a member's total incapacity is not probably permanent, the retirement system does not have the obligation to find an available job for a member.
History: 2008 MR 8, Eff. May 1, 2008.

R 38.40 Social security estimate.
Rule 40. If a member elects the equated payment under MCL 38.20(2) of the act, the estimated social security primary insurance amount shall be based on an estimate of the age 65 social security benefit obtained by the member from the social security administration and provided by the member to the staff of the retirement system. This social security estimate shall

be used to actuarially adjust the retirement allowance to provide an increased retirement allowance payable up to age 65 irrespective of when the retirant begins to draw social security. The retirement allowance shall be reduced at age 65 by the social security estimate amount the retired member provided at the time of retirement.
History: 2008 MR 8, Eff. May 1, 2008.

R 38.41 Survivor benefit; equated pension.

Rule 41. For purposes of this rule, the equated pension, as described in MCL 38.20(2) of the act, refers to the benefit before and after the retirant's attainment of age 65. If a member elects a survivor option, as provided in MCL 38.31(1) of the act, the member's retirement allowance shall be adjusted accordingly. If the member also elects to receive such a retirement allowance as an equated payment under MCL 38.20(2) of the act, then the resulting retirement allowance shall be paid until the retirant's death. Upon the retirant's death, the retirement allowance shall be adjusted to cancel the effect of electing the equated payment.
History: 2008 MR 8, Eff. May 1, 2008.

R 38.42 Service credit toward retirement.

Rule 42. (1) Under MCL 38.1i(1) of the act all of the following shall apply:

(a) Years of service are credited in accordance with the state fiscal year.

(b) The maximum service credited on the payroll end date of any state biweekly pay period is 80 hours.

(c) The maximum service credited in a fiscal year is 1.0000 which is equivalent to 2,080 hours.

(d) A maximum of 26 biweekly pay periods of 80 hours shall be credited in a fiscal year. Proportionate service credit shall be awarded for payrolls reported on a frequency other than a biweekly pay period. A part-time employee earns service credit in proportion to the hours worked within that pay period.

(e) Only regular hours are counted for service credit and overtime hours shall not count towards creditable service.

(2) An employee whose position is designated full time under legislative council operations administrative rules and determined to be full time by the staff of the retirement system, but whose full time schedule totals less than 80 hours per biweekly pay period, shall be credited with .0385 years for each full pay period of work.
History: 2008 MR 8, Eff. May 1, 2008.

R 38.43 Layoff; eligibility for purchase of buy-in credit; refund repay; resuming tax deferred payment (TDP) agreement.

Rule 43. For up to 1 calendar year after the effective date of a layoff, the individual laid off may purchase buy-in credit, repay a refund and, if returned to work, resume TDP payments on an existing agreement. If a layoff extends beyond a 1-year period, then the laid-off individual ceases to be eligible to purchase buy-in credit, repay a refund or, if returned to work, resume TDP payments on an existing agreement, unless the member demonstrates a continued employer-employee relationship as determined by the staff of the retirement system.
History: 2008 MR 8, Eff. May 1, 2008.

R 38.44 Ten-year service requirement.

Rule 44. (1) An applicant for a disability allowance provided in MCL 38.24 of the act shall meet the 10-year requirement only under either of the following conditions:

(a) If the applicant has 10 years or more of service credit in a position covered by the act.

(b) If the applicant has 10 years or more of service credit when the applicant’s service credit as an employee in a position covered by the act is combined with the service credit received under MCL 38.17, 17a, 17b, 17c, 17d, 17l or 17n of the act.

(2) An applicant for a disability allowance provided in MCL 38.24 of the act shall not be allowed to use either of the following:

(a) The provisions of the reciprocal retirement act, 1961 PA 88, MCL 38.1101, to meet the 10-year requirement set forth in MCL 38.24.

(b) Service credit purchased by the applicant under MCL 38.17g, 17h, 17i, 17m or 18(2) of the act to meet the 10-year requirement in MCL 38.24.
History: 2008 MR 8, Eff. May 1, 2008.

R 38.45 Eligible domestic relations order.

Rule 45. (1) An eligible domestic relations order issued under the eligible domestic relations order act, MCL 38.1701, shall be drafted in conformity with applicable law and a true or certified copy filed with the staff of the retirement system before the effective date of the member’s retirement.

(2) If the staff of the retirement system rejects an eligible domestic relations order as not in conformity with the applicable

law, then a true or certified copy of an amended eligible domestic relations order that conforms with applicable law shall be filed with the staff of the retirement system before the effective date of the member's retirement.
History: 2008 MR 8, Eff. May 1, 2008.

R 38.46 Domestic relations order.
Rule 46. (1) A domestic relations order, as defined in MCL 38.1702(c), shall be drafted in conformity with applicable law and filed with the staff of the retirement system before the member's death.
(2) If the staff of the retirement system rejects a domestic relations order as not in conformity with the applicable law, then a true or certified copy of an amended domestic relations order that conforms with applicable law shall be filed with the staff of the retirement system before the member's death.
History: 2008 MR 8, Eff. May 1, 2008.

R 38.47 Duty; non-duty.
Rule 47. If a member requests a duty disability and the member has more than 10 years of credited service, then the staff of the retirement system shall review the application to determine if the member qualifies for either a duty or non-duty disability retirement allowance. If the staff of the retirement system denies the application for a duty disability, but recommends approval of the application for non-duty disability, then the board shall not consider the application for non-duty disability until after the expiration of the 60-day notice provided in R 38.24(1).
History: 2008 MR 8, Eff. May 1, 2008.

R 38.48 Payment of retirement allowance.
Rule 48. A retirement allowance provided for in MCL 38.19, 19a, 19b, 19c and 19d of the act shall not be paid for any period of time before the date that the application is filed with the board.
History: 2008 MR 8, Eff. May 1, 2008.
49a;o. Rule 49. If do both of the following ((6 (, (, (subrule of this rule subrule of this rule6 doing either of the following (1. (1 (. (History: 2008 MR 8, Eff. May 1, 2008.
50a; u Rule 50. If then do both of the following (. (
History: 2008 MR 8, Eff. May 1, 2008.

PART IV. DECLARATORY RULING

R 38.51 Declaratory ruling.
Rule 51. (1) Any interested person may request a declaratory ruling from the board as provided by MCL 24.263 of the APA.
(2) A request for declaratory ruling shall consist of all of the following:
(a) Be in the form of a sworn statement.
(b) State the nature and purpose for the request.
(c) Contain a clear and concise statement of the actual state of facts upon which the ruling is requested.
(d) State the statute, rule, or order administered by the board that applies.
(e) Contain a statement establishing the relationship between the person requesting the ruling and the statute, rule, or order that applies.
(f) Contain the requested proposed ruling.
(3) An interested person who requests a declaratory ruling shall serve a copy of it upon every person referred to in the statement of facts included in the request.
(4) Within 90 days of receipt of a request for declaratory ruling that complies with this rule, the board shall respond to the request by doing 1 of the following:
(a) Issue the declaratory ruling.
(b) Deny the request for declaratory ruling.
(c) Extend the time for doing either subdivision (a) or (b) of this subrule by an additional 90 days.
History: 2008 MR 8, Eff. May 1, 2008.

DEPARTMENT OF LABOR AND ECONOMIC GROWTH

STATE OFFICE OF ADMINISTRATIVE HEARINGS AND RULES

STATE RETIREMENT BOARD - GENERAL HEARING RULES

PART I. PROCEDURAL RULES

R 38.71 Applicability.
Rule 71. (1) These rules apply to hearings held under the jurisdiction of the State Employees' Retirement Board.
(2) The terms defined in 1943 PA 240, MCL 38.1 et seq; 1969 PA 306, MCL 24.201 et seq; and R 38.21(1) have the same meaning when used in these rules.
History: 2008 MR 8, Eff. May 1, 2008.

R 38.72 Notice of hearing.
Rule 72. Notification of any hearing shall state the date, time, place, and issues involved. Notice shall be mailed by first-class mail at least 35 days before the hearing.
History: 2008 MR 8, Eff. May 1, 2008.

R 38.73 Appearance.
Rule 73. (1) If a party is represented by an attorney, the attorney shall file a written appearance.
(2) An appearance made at a hearing shall be made in person either by the individual who requested the hearing or by legal counsel.
History: 2008 MR 8, Eff. May 1, 2008.

R 38.74 Filing of documents.
Rule 74. If a document is not filed and served within the time limits established by these rules, the presiding officer or the board shall strike the document unless the individual serving the document establishes good cause as to why the document was not filed and served timely.
History: 2008 MR 8, Eff. May 1, 2008.

R 38.75 Service.
Rule 75. (1) A party shall serve all documents filed in a contested case on all other parties and the presiding officer. Service shall be made in person or by first-class mail with postage fully paid and addressed to the individual to be served at the individual’s last known address.
(2) The date of service shall be the date of personal service or the date that the document is placed in first-class mail.
(3) A party who files a document in a contested case hearing shall file a proof of service that establishes the document was simultaneously and properly served on all other parties.
History: 2008 MR 8, Eff. May 1, 2008.

R 38.76 Pre-hearing conference; scope.
Rule 76. (1) If a presiding officer determines that a pre-hearing conference will aid in the efficient resolution of the contested case, then the presiding officer may direct the parties or their attorneys to participate in a pre-hearing conference, either in person or by telephone, to do any of the following:
(a) State and simplify the factual and legal issues involved.
(b) Consider motions to be disposed of before hearing and other preliminary matters.
(c) Identify proposed documentary evidence and determine its authenticity, if possible.
(d) Estimate the time for hearing.
(e) Consider other matters that may aid in the resolution of the contested case.
(2) The presiding officer may provide a written summary of the items discussed to each party after the pre-hearing conference.
(3) At a pre-hearing conference, the presiding officer may direct the parties to file a hearing brief as to any of the issues involved in the action. If the parties are directed to submit hearing briefs, then the parties shall submit briefs to the presiding officer not less than 10 days before the hearing, unless a different date is set by the presiding officer.
History: 2008 MR 8, Eff. May 1, 2008.

R 38.77 Presiding officer.
Rule 77. (1) The State Office of Administrative Hearings and Rules shall designate presiding officers in contested case proceedings.
(2) A presiding officer shall issue orders that are necessary for the fair and efficient determination of the issues presented. These include, but are not limited to, an order in response to a motion to do any of the following:

(a) Extend the time to file a closing argument.
(b) Extend the time to file exceptions and/or replies.
(c) Adjourn a hearing.
(3) A party shall comply with an order of a presiding officer
(4) Neither the presiding officer nor any attorney in a contested case may issue a subpoena.
History: 2008 MR 8, Eff. May 1, 2008.

R 38.78 Adjournment or continuance of hearing.
Rule 78. A hearing shall not be adjourned or continued except upon an order of the presiding officer. Unless made during a hearing, all motions and requests for an adjournment, or a continuance, shall be filed in writing and state concisely the reasons why an adjournment or continuance is necessary.
History: 2008 MR 8, Eff. May 1, 2008.

R 38.79 Hearing record.
Rule 79. A verbatim record shall be made of each hearing held. Upon request, a party may order a transcript. The requestor shall pay the cost of the transcript.
History: 2008 MR 8, Eff. May 1, 2008.

R 38.80 Form; time for filing motion.
Rule 80. (1) A request to the presiding officer for an order in a pending action shall be by motion, in writing, unless made during a hearing. The request shall state the relief or order sought, the grounds and authority on which the request is based, and be signed by the party or the party's attorney.
(2) A copy of the written motion and brief, if any, shall be served in accordance with R 38.75(1). If a motion or response is supported by affidavit, then the affidavit shall be filed and served with the motion or response.
(3) A party opposing a motion shall serve a response and any brief and supporting affidavit or affidavits within 14 days after service of the motion unless otherwise ordered by the presiding officer.
(4) The presiding officer may limit or dispense with oral arguments on motions.
History: 2008 MR 8, Eff. May 1, 2008.

R 38.81 Motion for summary disposition.
Rule 81. (1) A party may move for summary disposition on all or any part of the claim at any time. The motion shall state that the moving party is entitled to summary disposition on 1 or more of the following grounds and shall specify the grounds on which the motion is based:
(a) The petitioner has failed to state a claim upon which relief can be granted.
(b) There is no genuine issue as to a material fact, except as to the relief to be granted.
(c) The board lacks jurisdiction of the subject matter.
(d) The claim or defense is barred because it is untimely.
(e) The claim or defense is barred because of some other legal impediment or other disposition of the claim.
(2) If the motion for summary disposition is based on subrule (1)(a) of this rule, then only pleadings may be considered. A motion based on subrule (1)(b), (c), (d) or (e) of this rule shall be supported by affidavits or other documentary evidence and shall specifically identify the issues on which the moving party believes there is no genuine issue of material fact. The affidavits, together with the pleadings and documentary evidence then filed in the action, or submitted by the parties, shall be considered. If a motion is made under subrule (1)(b) of this rule and supported as provided in this rule, then an adverse party shall, by affidavits or otherwise provided in this rule, set forth specific facts showing that there is a genuine issue for hearing.
(3) A presiding officer shall rule on a motion for summary disposition in a proposal for decision.
History: 2008 MR 8, Eff. May 1, 2008.

R 38.82 Discovery.
Rule 82. (1) Discovery shall not be allowed in any contested case hearing conducted under the act or these rules except depositions may be taken upon written approval of the board where it is established that it is impractical or impossible to otherwise obtain the evidence. If the board approves the taking of a deposition, it shall be taken in conformity with the Michigan court rules.
(2) The petitioner shall serve a list of witnesses 20 days before the scheduled hearing date. The respondent shall serve a list of witnesses 10 days before the scheduled hearing date. A party shall not call as a witness a person who was not included on a witness list unless the presiding officer finds that the party has established good cause as to why the person was not included on the party's witness list.

History: 2008 MR 8, Eff. May 1, 2008.

R 38.83 Closing arguments.
Rule 83. The presiding officer shall notify the parties whether written or oral closing arguments shall be scheduled and the time deadlines for such arguments.
History: 2008 MR 8, Eff. May 1, 2008.

R 38.84 Proposal for decision.
Rule 84. The presiding officer shall prepare a proposal for decision within a reasonable time after the closing of the record. It shall include findings of fact, conclusions of law, and a recommended decision. The proposal for decision shall be served on each of the parties and the hearing coordinator of the retirement system.
History: 2008 MR 8, Eff. May 1, 2008.

R 38.85 Considerations of documents.
Rule 85. The presiding officer shall admit the administrative record if offered into evidence at the hearing.
History: 2008 MR 8, Eff. May 1, 2008.

R 38.86 Testimony; telephone and other electronic means.
Rule 86. A presiding officer shall not take the testimony of a witness by way of a telephone conference call or other electronic means unless all of the following occur:
(a) The party who wants to take such testimony serves a motion at least 10 days before the date of the hearing.
(b) The presiding officer concludes that it is impractical or impossible to otherwise obtain the testimony.
(c) The presiding officer concludes that the witness is not needed to appear in person so that the witness's appearance and demeanor may be observed for credibility purposes.
History: 2008 MR 8, Eff. May 1, 2008.

DEPARTMENT OF EDUCATION

STATE TENURE COMMISSION

GENERAL RULES

PART 1. GENERAL PROVISIONS

R 38.131
Source: 1987 AACS.

R 38.132
Source: 1979 AC.

R 38.133
Source: 1979 AC.

R 38.135
Source: 1998-2000 AACS.

R 38.139
Source: 1998-2000 AACS.

PART 2. APPEAL PROCEDURES

R 38.141
Source: 1998-2000 AACS.

R 38.142
Source: 1998-2000 AACS.

R 38.143
Source: 1998-2000 AACS.

R 38.144
Source: 1998-2000 AACS.

R 38.145
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R 38.146
Source: 1998-2000 AACS.

R 38.147
Source: 1998-2000 AACS.

R 38.148
Source: 1998-2000 AACS.

R 38.149
Source: 1998-2000 AACS.

PART 3. MOTION PRACTICE

R 38.151
Source: 1998-2000 AACS.

R 38.152
Source: 1998-2000 AACS.

R 38.153
Source: 1998-2000 AACS.

R 38.154
Source: 1998-2000 AACS.

R 38.155
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R 38.156
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R 38.157
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R 38.158
Source: 1998-2000 AACS.

R 38.159
Source: 1998-2000 AACS.

PART 4. PREHEARING CONFERENCE

R 38.161
Source: 1998-2000 AACS.

R 38.162
Source: 1998-2000 AACS.

R 38.163
Source: 1998-2000 AACS.

R 38.164
Source: 1998-2000 AACS.

R 38.165
Source: 1998-2000 AACS.

PART 5. HEARINGS

R 38.171
Source: 1998-2000 AACS.

R 38.172
Source: 1998-2000 AACS.

R 38.173
Source: 1998-2000 AACS.

R 38.174
Source: 1998-2000 AACS.

R 38.174a
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R 38.175
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R 38.176
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R 38.177
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R 38.178
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R 38.179
Source: 1998-2000 AACS.

DEPARTMENT OF MANAGEMENT AND BUDGET

PUBLIC SCHOOL EMPLOYEES' RETIREMENT BOARD

GENERAL RULES

R 38.201—R 38.215 Rescinded.
Source: 1954 AC

R 38.221
Source: 1997 AACS.

R 38.222
Source: 1997 AACS.

R 38.223
Source: 1997 AACS.

R 38.224
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R 38.225
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R 38.226
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R 38.227
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R 38.228
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R 38.232
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R 38.233
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R 38.234
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R 38.235
Source: 1997 AACS.

PROCEDURE FOR CONDUCTING HEARINGS

R 38.301
Source: 1997 AACS.

R 38.302
Source: 1997 AACS.

R 38.303
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R 38.304
Source: 1997 AACS.

R 38.305
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R 38.306
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R 38.307
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R 38.308
Source: 1997 AACS.

PROCEDURE FOR CONDUCTING HEARINGS

R 38.801
Source: 1979 AC.

R 38.802
Source: 1979 AC.

R 38.803
Source: 1979 AC.

R 38.804
Source: 1979 AC.

R 38.805
Source: 1979 AC.

R 38.806
Source: 1979 AC.

R 38.807
Source: 1979 AC.

R 38.808
Source: 1979 AC.

DEPARTMENT OF CIVIL SERVICE
OFFICE OF POLICY AND PUBLIC AFFAIRS
SUGGESTION AWARDS PROGRAM

R 38.901
Source: 1988 AACS.

R 38.902
Source: 1979 AACS.

R 38.903
Source: 1988 AACS.

R 38.904
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R 38.905
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R 38.906
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R 38.907
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R 38.908
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R 38.909
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R 38.910
Source: 1988 AACS.

R 38.911
Source: 1988 AACS.

PUBLIC SCHOOL EMPLOYEES' RETIREMENT BOARD

GENERAL RULES

PART 1. GENERAL PROVISIONS

R 38.1101
Source: 1985 AACS.

R 38.1102
Source: 1985 AACS.

R 38.1103
Source: 1985 AACS.

R 38.1104
Source: 1985 AACS.

R 38.1105
Source: 1985 AACS.

R 38.1106
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R 38.1107
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R 38.1108
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R 38.1109
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R 38.1112
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R 38.1113
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R 38.1115
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R 38.1117
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R 38.1118
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R 38.1119
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R 38.1120
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R 38.1121
Source: 1985 AACS.

R 38.1122
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R 38.1123
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R 38.1124
Source: 1985 AACS.

R 38.1125
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R 38.1126
Source: 1985 AACS.

R 38.1127
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R 38.1128
Source: 1985 AACS.

R 38.1129
Source: 1985 AACS.

R 38.1130
Source: 1985 AACS.

R 38.1131
Source: 1985 AACS.

PART 2. HEARING PROCEDURES

R 38.1201
Source: 1985 AACS.

R 38.1202
Source: 1985 AACS.

R 38.1203
Source: 1985 AACS.

R 38.1204
Source: 1985 AACS.

R 38.1205
Source: 2004 AACS.

R 38.1206
Source: 1985 AACS.

R 38.1207
Source: 1985 AACS.

DEPARTMENT OF CONSUMER AND INDUSTRY SERVICES

SURVEY AND REMONUMENTATION COMMISSION

GENERAL RULES

R 54.201
Source: 1992 AACS.

R 54.202
Source: 1992 AACS.

R 54.203
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R 54.204
Source: 1992 AACS.

R 54.205
Source: 1992 AACS.

R 54.206
Source: 1992 AACS.

R 54.207
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R 54.208
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R 54.210
Source: 1992 AACS.